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OF THE

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INSTITUTION

JAMES C. BUSH, Editor.

Authors alone are responsible for opinions published in the Journal.

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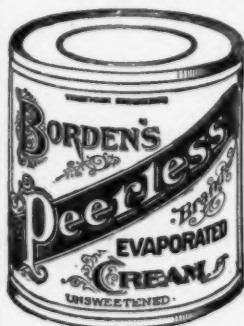
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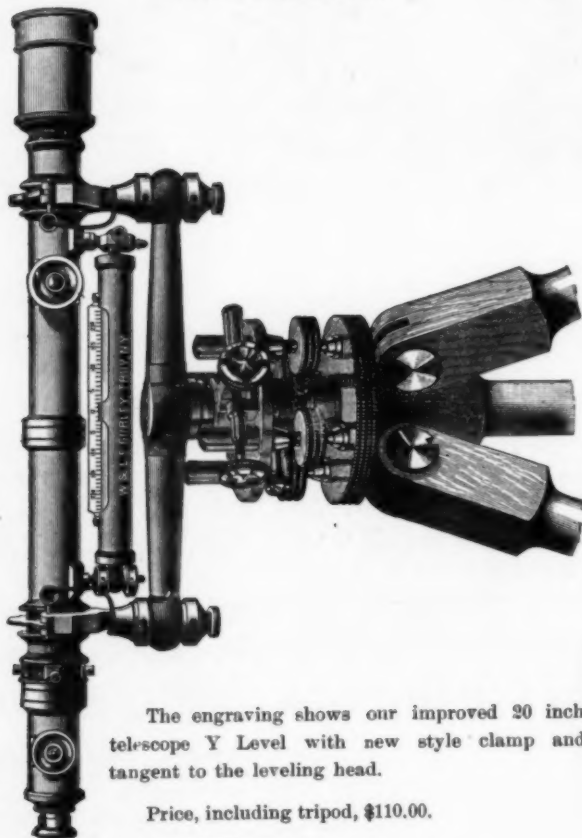
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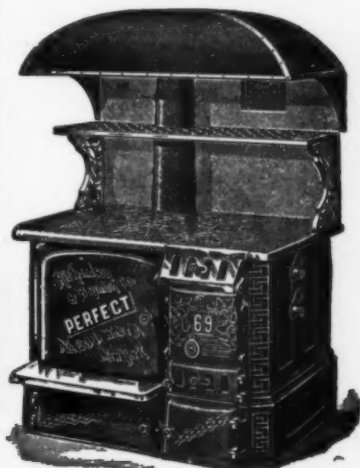
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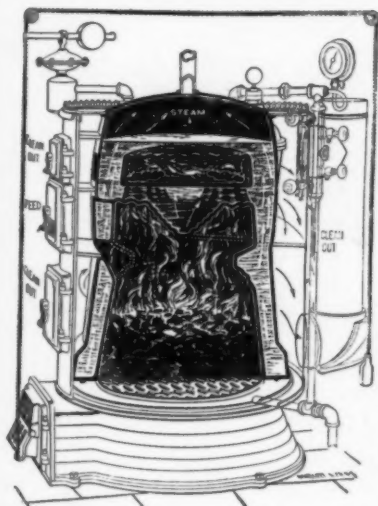
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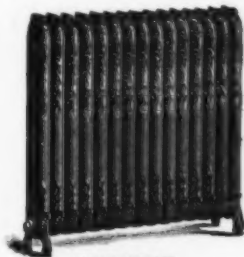
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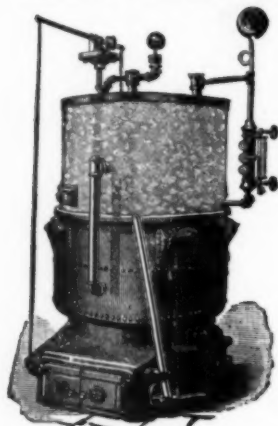
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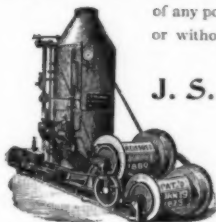
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"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because Peace is enervating and no man is wise enough to foretell when soldiers may be in demand again."—SHERMAN.

VOL. XV.

NOVEMBER, 1894.

NO. LXXII.

A PAPER ON MILITARY LIBRARIES.

(Compiled from my own.)

BY COLONEL HENRY W. CLOSSON, FOURTH U. S. ARTILLERY.

PART I.

A MAN may get a very good fit at any "Broadway Clothing Emporium," to use the advertiser's terminology, but it will be a fit that might as well belong to a thousand other people. What there is characteristic about it, if anything, will rather proclaim the positive salesman than the doubtful buyer. There will certainly be lacking the fine, peculiar touches that belong to his own individual height, weight, and form combined.

In like manner a man may get a library to order—a fixed space of shelf-room to a corresponding amount of standard literature in law, medicine and strategy. But it will be such a library as might be found anywhere else and therefore hardly worth the trouble of transportation. The books to carry with you are the books that other folks seldom have.

Instances are known where so many running feet of history, so many of poetry, so many of travel, of sermons and of fiction have been called for to occupy definite wall areas in what the builder has had set apart for a "library" in some residence on the Avenue of an owner who wants his money's worth in gilt and

morocco and is wholly indifferent as to whether his author is Gibbon or Abbott, Milton or Montgomery, so the binder exhausts the resources of his art and produces the desired impression of the taste and munificence of his patron.

With displays of this sort we have nothing to do. Books are bound to be read, of course, but as a mere matter of bric-a-brac they are better looking than bronze, terra-cotta, or old china, and of none can it be said that it is absolutely worthless. Even that life of Wolfe, he who wrote "The Burial of Sir John Moore," a life which is affirmed to be the worst biography in existence, perhaps because it undertakes to show what the poet was by the sermons he wrote, yet has an importance as giving the limit in one direction which absolves the collector from any further search.

It is the real library that reveals the inner man and is a testimony to his own likes and dislikes, to his own instincts and habits of thought. In fact, if long enough continued, it is his history, his whole mental and spiritual development. Given his books and there can be predicted both the future and the past of the man, and not only that, but the traits which are hereditary in him and will become the inheritance of his children.

Suppose, then, the graduate has left the academy behind him and is looking about for the material wherewith to add to his intellectual equipment, particularly as a soldier, and also in a general way, the aim and extent of which is hardly determined.

He will not have secured at West Point much more than habits of study, readiness of application, and certain limited professional prejudices which are to be broadened and refined into good working judgments by observation and reflection in his later career, all of which will produce a greater or less corrective and additive effect according to the chances and calibre of the man.

Contact with other and older officers will do something, especially in a life of routine like ours ordinarily, where almost the same set of duties remains to be discharged, and it will be natural to refer to precedents with more of which the officer becomes familiar the longer he serves. Opportunities, even in the smallest way, of command and initiative, always increasing with time, will test his faculties in a minor degree and his disposition still more, but should these opportunities be greater than the average he will find himself with large amounts of leisure superior to any demand that drills, parades and the actual work of peace time

make upon him, even when supplemented by that pursuit of "fin, fur and feather" which constitutes so good an introduction into the elementary conditions, at least, of the art of war.

It may be as well, however, to note right here that the life of one man covers the three wars of the Republic in spite of International Exhibitions, Arbitrations and Commissions. General Scott fought at Chippewa, captured Mexico, and inaugurated President Lincoln. And if there is aught in the signs of the times the millennium is side-tracked, pending not only the ownership of the Rhine and the Indus, but even of a man's right to his own earnings in honest dollars at that.

What then shall the lieutenant do with his leisure left over when the Sergeant of the guard, and the non-commissioned officers' recitation, and the Co. Council, and the Court-martial, and the Board of Survey, and the Third Auditor, and the Second Comptroller, and all the other incumbrances with which the world was cursed when Paradise was lost, have been encountered and disposed of? When he has even tired out appetite and muscle in the capture or search for trout, turkey and antelope?

If he was a student of divinity or of medicine or of law, the answer would be ready enough, for these pursuits, continuously dependent upon public favor, demand constant adaptation to an ever increasing store of ways and means, and books are as much the tools of these trades as pulpits, knives or clients. The Science of War, too, widens with all the rest and the preparations and conditions of success here as elsewhere become more and more complex.

If we turn to any of the great examples which light up our path we shall find that all of these were close students, either directly of men and their ways in courts, camps and cabinets, or of their reflections as mirrored in the history and biography of their own times.

It once was the custom for the officer to serve his apprenticeship under some Gustavus or Prince Eugene or House of Orange. He secured his education by hard knocks in march, siege and battle. There was always trouble somewhere which permitted this as part of every experience. But it is matter for rejoicing that actual hostility is ceasing to be the business of the nations, though as the struggle is now concentrated within a few months instead of being diffused over thirty years, the chances for reparation are far fewer, the punishment of incompetence is far

greater and the need of capacity immediate and relentless. Granted that rather than rare periods of relief and rest from devastated fields and sacked cities, we may more reasonably count upon a lifetime of readiness for, in room of participation in, the perils and sacrifices of battle, and that wide countries are no longer the seat of endless campaigns in the interest of either religion or dynasties—that Dugald Dalgetty or Captain John Smith, if now on the scene, would have to take to politics for the luxury of a broken head or a full pocket book—then, cut off as we seem to be, from this instruction by object lessons we must make our deficiencies good by the nearest approach thereto, and this certainly leads through text books, supplemented and enlarged by our own studies in detail of the principles and precepts there laid down.

But this is not all. It has been said that a man should know not only everything of something, but something of everything. In order to be thoroughly acquainted with your own ground you must also have more than a bird's-eye view of neighboring territory. And this is particularly the case as the conditions of war become more involved with larger problems of transport and supply, broader areas of action, greater resources of all kinds, and considerations more subtle and complex of forces and influences, material, moral and personal, that are available either in support or opposition, requiring not only a thorough familiarity with military mechanics but with the course of states as shaped by their policies and of men, under all their varied response to the accidents of time and place, skilfully brought to bear in the aid of our own purposes, of illustrations of which history is full, as when in our civil war one general reckoned upon and allowed for what he knew of the rash and headlong temper of his opponent, or as when Cromwell urged forward his praying pikemen at Dunbar to the shout of "Let God arise and let his enemies be scattered," or as when the old Admiral at Mobile Bay met doubt and hesitation and disaster with the reply, "Damn the torpedoes—Go ahead!"

Take for instance Moreau. It is written of him that he was remarkable for his devotion to military works and memoirs, consecrating the time allowed for recreation to such studies as would prepare him for the field. He was found late and early at his table surrounded by his books, his maps and his plans, reading in four months more military treatises than had been written in

four centuries, and it is noted of him, what is most indispensable, that he possessed not only a strong appetite for knowledge, but strong powers of digestion which made his improvement proportionate to his application. Hohenlinden was one result, better known too for Campbell's poetry than for Moreau's strategy, superior as it was.

There was in him the promise of a peer to Napoleon until he was put out of the way, not perhaps to the unhappiness of his rival.

What was true of Moreau is true of almost every successful soldier and no doubt is equally true of some very successful—failures. Simple study of itself brings no reward in any profession, least of all in the emergencies and surprises of war. But it lays in supplies of which there must be the right and prompt use on occasion. A man might starve in the market place if he could neither secure the food around him, nor assimilate it when secured. If on the one hand books do not make the general very few real generals are made without books.

Little is known of the early life of the Duke of Wellington, but it is recorded of him that determined to devote himself to his profession he burnt his violin and gave up card playing as useless and injurious distractions, while to natural gifts he added indefatigable and intelligent application to his duties. It was his practise to descend into minute details and acquaint himself with the whole field of action, and it will be recollected that in the main he was his own engineer, artillery and staff officer. He had no need for dry nurses nor for any second in command with whom to share control or responsibility.

That sixth sense, which has been called reticence, was very characteristic of the Duke. It is stated that on the eve of the battle of Waterloo Lord Uxbridge felt anxious about what might be expected of him should anything happen to Wellington, thus making Uxbridge commander-in-chief. After much dubitation he ventured to ask the Duke about his plans, believing that dispositions profoundly calculated had been wrought out by him with reference to all eventualities, and these as a possible successor he thought he ought to know. Once in the Duke's presence he explained his object with great delicacy. The Duke listened without a word until Lord Uxbridge had finished and then asked the question, "Who will attack the first to-morrow, Bonaparte or myself?"

"Bonaparte."

"Very well—Bonaparte has not given me any idea of his projects, and as my plans will depend upon his, how can you expect me to tell you what mine are?"

"But," added the Duke, "one thing is certain, Uxbridge, whatever happens you and I will do our duty."

All of which sounds very well and will do for him who can plan on the spur of the moment, as all generals must, but few there are, if any, who do not forecast the future, and that Wellington had done so is proved by his retention of 20,000 men at Hal, away on his right. But doubtless he believed that every man had better dig with his own shovel.

Wellington's habits were exactly those of a student, habits of accurate and extended investigation, with correct inferences, which, rapidly done, is the art of war. It is curious how little respect the Duke seems to have had for "abilities." "Sound sense," he says, "is far better."

Perhaps his account of why he succeeded in beating Napoleon's marshals illustrates the difference between a campaign in the shop and a campaign in the field as well as anything. "The marshals," said he, "made their plans just as you might make a splendid set of harness. It looks beautifully and answers very well until it gets broken and then you are done for. Now I," said he, "made my campaign of ropes—if anything went wrong I tied a knot and went on."

Precisely so. It is just these breaks that create trouble for shop labor, and when they occur it is in this thing of tying knots that the whole secret of the business lies.

Artificial generals immediately halt and send in a requisition for buckles. The genuine article ties a knot and goes ahead.

But he must first learn how to tie knots, and knots that will not slip, and here is where the books come in.

The Duke, however, led a very busy life from the beginning and had little leisure for study. He was educated in the field by thirty years actual conduct of troops. In his case no one has told us of a favorite volume or a favorite author, unless it was himself, and his own dispatch book, which, in later years, did call forth his admiration.

We know that Alexander carried Homer in his campaigns enshrined in a gold casket, for the same reason that Wordsworth said he published his poem of the White Doe in quarto—to show his appreciation of its worth.

We know that Cæsar wrote his own Commentaries and are sorry that Hannibal did not do the same. We have the memoirs of Sherman and Grant, and only wish we could have secured those of Lee. Sheridan, Johnson and Sherman have spoken for themselves—would that Jackson and Hancock had lived to do likewise.

Napoleon had a regular camp library, and Bourrienne was by him commissioned to purchase for the trip to Egypt not only a good stock of Burgundy, but also cabinet editions of works in art and science, geography and travels, history and poetry, romance, politics and morals.

This is the first military library the contents of which have been catalogued for us, and it must be allowed, like most of what Napoleon did, to be a model.

Under the head of history is enumerated Plutarch, which in fact might be called the text-book of the French Revolution, for it kindled the ambition and furnished the ideal for that long succession of soldiers who rose to be the military grandees of the empire; and not only the army, but the court, the forum and the Salon drew inspiration freely from the same source—Plutarch. Then Napoleon owned the lives of Turenne, Condé, Luxembourg, Saxe, together with twenty volumes of memoirs of Marshals of France, four volumes of Marlborough, six of Eugene, lives of Charles the Twelfth, Peter the Great, and Frederick the Second of Prussia.

In poetry the Emperor, besides his fondness for Ossian—whence the names Dermide and Oscar for his two godsons the young Le Clerc and Bernadotte—refreshed himself with Homer and Virgil, Telemachus and La Fontaine. Under romance were included Voltaire and forty English novels, and among them were doubtless *Clarissa Harlowe*, over which English ladies in garrison abroad fought lustily for the first reading, and *Roderick Random*, whose pages are said to have given the grim Carlyle the sunniest day of his life.

Such a library to-day might not make a Bonaparte, but it serves to show what direction his reading took and how varied his studies were, as became a man whose schemes embraced all provinces of thought, for the Bible, the Vedas, and the Koran were also among his books.

There was another king absolutely worthless for any good purpose in camp or cabinet, now mainly remembered as a ravenous consumer of cutlets and candy, who was brought back to the

throne, or rather his arm-chair, by the combined forces of Europe, with the Duke of Wellington as chief usher—Louis the Eighteenth, on whom a life of exile was thrown away. And the one thing that greatly surprised him on his arrival at Paris was, strange to say, by no means what so surprised George the Third in the matter of the apple in the dumpling—how the devil it got there—but it was that the library left behind by Napoleon consisted so largely of theological works. The last of the Louis would have been more at home with the imperial cook books and menus.

Sir William Gomm offers a pleasant illustration of how, in the soldier himself, the literary may dominate the military instinct. He was over ninety when he died, with eighty years of service to his credit. Beginning as an ensign he rose to be field-marshal, commander-in-chief of India, Constable of the Tower of London, G. C. B., etc. Medals and crosses covered his breast, won in various lands and battles, including the Peninsular war and Waterloo. He had seen the sun flashing against the helmets of four thousand British cavalry as they rode over the plains of Vittoria in pursuit of the routed French. He had seen the deep columns of the Old Guard move up the slope at Waterloo and melt away before the fire of Wellington's reserves. He had seen the military parades and metropolitan display of royal anniversaries, as well as all the barbaric splendor and natural sublimity the East has to offer to the representatives of its imperial ruler, the tomb of the queen of Shah Jehan, the ranked summits—peak on peak—of the Himalayas; and yet when asked what occasion was the happiest moment of his life, he selected none of all these but promptly replied that it was at Westminster School when he translated two lines of Virgil:

"Straight at the word divine Æneas rose
And thus renewed the tale of Ilion's woes."

"Very good—very good indeed," said the master, "better than Dryden."

"That," added the old field-marshal, "that was the happiest moment of my life."

In a previous paragraph we alluded to Wellington's dispatches. They really constitute him an author, since they take up twelve octavo volumes with which he seemed to be the more satisfied the oftener he looked at them.

"I have been reading over those dispatches of mine," he is

made to say years after they were written, "and I am surprised to find them so good. I could not do better now."

The following extract might be held to justify the Duke's opinion; "He who in war fails to do what he undertakes may always plead the accidents which attend military affairs, but he who declares a thing to be impossible which is subsequently accomplished registers his own incapacity."

There is a tradition that General Butler was engaged in demonstrating to a Congressional Committee that Fort Fisher could never be taken, at the very moment the news arrived of its capture by General Terry, but we do not make ourselves responsible for the statement or for any other that may at any time escape us on the conduct of the war, nor do we affirm of our own knowledge that there ever was a war. Nor have we ever heard a satisfactory explanation of how West Virginia wandered into the U. S. Atlas after 1861.

If it is not easy to find much of the library about the two English generals, Wellington and Marlborough, there was a good deal of it concerned in the education of the great Frederick. He was an assiduous reader and fond of books in spite of the stupid use sought to be made of them by his eccentric father in trying to fit the son to his place.

The king, we are told, would have the prince memorize huge folios of dry abstracts of events, names, dates, battles, sieges, treaties, etc., but the preference of the prince was a truer one. He desired to look not so much into this barren detail as the philosophy of history—why these things were so. What is the use of learning by heart disconnected particulars if one can secure the principle under which they are all grouped, reasoned the prince, and if right in his day he is more so at present when every year adds to the mass and the principle remains the same. Reading history to profit is only possible when the broad general considerations under which events still continue to aggregate themselves are remembered and applied.

The *Henriade* of Voltaire was one of Frederick's books, and he gladly takes refuge from Potsdam Grenadiers and pipe-clay in French romance generally.

This man whose life was after all to be so busied with grenadiers and so little with romance of any sort, much less the prolix meanderings of French fiction in the days of the poly-volumed "*Grand Cyrus*" and "*Cleopatra*," was a scholar spoiled by

soldiering. He starts out gayly enough to appropriate Silesia but, like Napoleon, is reduced to carrying poison that he may not fall bodily into the hands of the implacable enemies he has made, until at last, unlike Napoleon, he emerges from long years of trouble to find such dull solace as may lie in dinners with his generals, and their conversation upon "old pranks of youth and old tales of war."

Frederick is said to have had a great respect for facts, but as usual only for such facts as squared with his wishes. We read about a certain hill, key to the enemy's position, which the old king very much wanted but hesitated to storm—"So high—impossible."

And by way of assuring him in this notion some eager staff officer, theodolite in hand, carefully measured the altitude and reported the exact number of feet.

"How do you know that, sir?" growled the King.

"Measured it by trigonometry, your majesty."

"Go to the devil—you and your trigonometry too,"—was all the thanks the mathematician received, Frederick apparently having as little respect for angles as Sydney Smith's friend had for the equator or the north pole.

Looking nearer home we find among our own generals Nathaniel Greene—one of the best of them, and represented by his biographers as slowly accumulating and ardently devouring books. His library numbered some two hundred and fifty volumes which he thoroughly studied, reading them over and over again. He supplied himself with translations of Homer and Horace and read Cæsar and Plutarch, the Memoirs of Turenne, and added to these Pope, Swift, Sterne and the Spectator, looking, it will be seen, far beyond mere professional culture.

Light is always thrown upon special studies from all other quarters of knowledge, and no single idea is by itself what it becomes when we go back to it from a wider experience and an enlarged observation, just as we attain to truer ideas of the stream that belongs to boyhood's recollections after we have crossed the Hudson, the Ohio and the Mississippi. For us there is nothing absolute in any creed or canon, in any art or science, neither in this world nor in the world to come, for the past is always in process of readjustment to an infinite future.

In General Greene the true nature of the man is shown by the fact that the first money he secured from his own toil was laid

out in books, such books too as Locke on the Understanding, Watts' Elements of Logic, Euclid and Blackstone. This shows a hunger and thirst for knowledge and, as is also noted in his life, "a determination by his own efforts, unaided but persistent to secure the benefits of mental training and discipline," always the necessary step to any large success in life-work, and which foreshadowed the character of the man who began at Camden and Guilford Court House the redemption of the Southern colonies, and whose Quaker ancestry, by the way, made him a good spring-board for the leap into military waters.

Nor can we think of Greene without thinking of Washington, and questions as to the condition of his library are easily answered. There were some eight hundred volumes and among them we note a few as evidence of the less known mental habits of a man whose historical portrait leaves little by which to relate him to the sympathies and occupations of every-day life over which he seems to tower like his own monument over the statuary of park and square below.

Washington had Ossian on his shelves, as well as Robert Burns, and one likes to imagine the Father of his Country turning over the pages of Tam O'Shanter:

"As bees fly hame wi' lades o' treasure,
The minutes winged their way wi' pleasure."

There was also a copy of Dwight's Conquest of Canaan, in which we do not believe the leaves were cut, and a copy of McFingal, well worth reading now.

What better authority does the army officer of to-day want than Tennyson and Longfellow on the poetical side of his military studies?

It is not easy to picture Washington, as history hands him down, devoting a whole evening to Hudibras, Don Quixote, Gil Blas, but they were all within his reach and so were Gulliver and the Life of John Bunce.

If a man's books are any index to character Washington must have had that sense of humor which Professor Coppée seems to think was lacking in General Thomas—an opinion we must decline to adopt, as we have a very distinct recollection of a couple of Indian squaws fighting over a watermelon and an officer then known as Major Thomas, of the Third Artillery, looking on from behind the prudent seclusion of a window in the adobe quarters

of the C. O. of Fort Yuma. We are positive that the ghost of a smile was gallantly struggling to rise into full existence on that lion-like face as the orderly was summoned to put a stop to the battle.

No man could have dealt, as General Thomas must have done, with the thousand and one temptations to laugh that grow out of the constantly recurring misadventures and encounters of garrison existence on the frontier, without having been educated in spite of himself into some appreciation of the ridiculous, as when a certain company once fell in for drill and, the roll-call over, a lieutenant, just joined from the Point, and spoiling for lack of something to do, jumped at the chance of his captain's absence and commenced an energetic lesson at the manual.

Meantime that captain was buckling on his belt in his quarters with the slow and careful dignity of twenty years' service. Finally, he appeared, leisurely marching toward the barracks. Half way there something wholly unexpected seemed to confront his vision, to which he deliberately adjusted his eyeglasses, and then became as perpendicular and rigid as the flagstaff.

Taking position well behind the busy lieutenant he drew his sword, and while that unfortunate youth was shouting in his most incisive manner, "Stop that laughing in the ranks!" the captain thundered out, "Shoulder arms—By the right flank by file right—march!" and the company moved off, the lieutenant utterly crushed, slowly subsiding into a file closer.

General Thomas might have seen this, and could not have seen it unmoved, but we were too much absorbed at the time to scrutinize the audience.

Of purely professional literature there was no lack at Mount Vernon in times when, as compared with these, such books were almost as rare as bishops on Blackwell's Island. Washington had the life of Frederick and his works, Turenne, Charles the Twelfth, Count Saxe, from which he could have drawn the inspiration of Trenton and Monmouth, or the resolve and tenacity which strengthens with danger and defeat and wrests victory from the most adverse conditions. He had rather more than the ordinary equipment of tactical works, Military Guides, Duties of Soldiers, Treatises on Fortification and Artillery, maps, charts and the "Doctrine of Projectiles."

Of history there was a good collection of the standards of his day and the owner of so large a landed property had of course

accumulated largely under such heads as Farming, Gardening and Agriculture.

Among the Mount Vernon fiction we can be certain that Fielding was represented by Tom Jones, and Smollett by Humphrey Clinker. To think of these books as annotated by Washington requires a stretch of the imagination—so much are we dominated by the severity of his portraiture, but had he pencilled his comments as he read, such copies would be the chief prizes of the American bibliophile and would do more to tell us about the man himself than all the lives that have been written.

The patriot, the soldier and the statesman we all know; Washington off duty, in his shirt sleeves, so to speak, is still a mystery.

But there is no revelation like a laugh. It comes on the impulse of the moment, without calculation, and from the inner depths. We have it on good authority that a man may smile and smile and be a villain still, but his laugh is another matter. General Putnam we have heard of in the wolf's den, and as he galloped headlong down those stone steps where the British dragoons did not dare to follow. The scene however most worthy of immortality is that where he rode into camp at Cambridge one day with an old woman clinging to his back, the plight of the two, it is said, provoking peal after peal of laughter from George Washington, then commander-in-chief.

We may reasonably infer that Parson Adams and Tabitha Bramble would afford a welcome refuge from the politics and scandal of the presidential atmosphere a hundred years ago.

It is worthy of note that the work so severely commented upon by Doctor Johnson as teaching the morals of—Anonyma and the manners of a dancing master, Lord Chesterfield's letters, belonged to Washington's library.

But the massive Doctor, conscious of the natural rebellion of a body liberally fed with veal pie, plums and sugar, boiled pork, chocolate and melted butter, was none too tender with the allurements of the world, the flesh and the devil. Once in a while, however, he has a good word for our profession, as when he said that the officer is much more esteemed than any other individual who has so little money, for, added the Doctor, in his logical way, "they who stand forth the foremost in danger for the community have the respect of mankind." But Kipling hits the nail on the head when he writes of Tommy Atkins.

"It's 'Tommy this and Tommy that, an' Tommy fall be'ind,'
 But it's 'please to walk in front, sir,' when there's trouble in the wind.
 It's 'Tommy this and Tommy that' and 'chuck him out, the brute,'
 But it's 'savior of 'is country' when the guns begin to shoot."

All of which clearly entitles Mr. Kipling to a place in our military library with regrets that Washington was unable to make the acquaintance of Corporal Mulvaney and Dinah Shadd. But our first General and President, besides Ossian and Burns, possessed the Bible, Voltaire and Shakespeare, which would constitute a library by themselves.

Voltaire, however, appears only in a volume of letters, though of bibles there are several, and theology is represented by Priestley's Evidences, one work on Universalism and one on the Thirty-nine Articles, to say nothing of commentaries, concordances and an abundance of sermons, including those of Sterne. Everything considered, the dogmatic outlook is decidedly hospitable.

We have read somewhere that the favorite toast of the English publishers during the Retreat from Moscow was "Napoleon—Hot pressed and bound in Russia." Certainly they once used to drink to the health of the "Four B's," or the works from which they had collected the largest revenue, Burns' Justice, Blackstone, Blair's Sermons and Buchan's Domestic Medicine. As might have been expected these are treatises on Divinity, Law and Medicine, always profitable, for people are always uneasy about their souls, their stomachs, and their property.

Washington appears to have contented himself with the first of these compendiums, which was a manual of legal procedure. He would seem to have been his own physician unfortunately, but the doctors of those days might well have drank bumpers to the single "B" in bleeding to which their practice was largely confined, making things very simple both for themselves and the heirs of the patient.

In his library was also Bishop Berkeley's work on Tar water which was as much of a specific then as Poland water at present, and probably as beneficial. Washington was also willing to learn from his enemies, for he was the owner of Sir Henry Clinton's Narrative and the Story of Lord North's Administration, that lord who carried on the fight against the Colonies in opposition to his better judgment, through loyalty to the king, and who is said to have received the news of the surrender of Cornwallis as he would a bullet in the breast, exclaiming wildly as he paced the apartment, "It is all over—all over—all over!"

Here we will leave the catalogue rather reluctantly, for it illustrates the right principle of a collection and the text of this paper, that to occupy the mind either with one book or any particular class of books exclusively is to cramp the intellect and secure only partial views of truth.

Frequent mention has been made of Turenne. He is described in his life as a stammering youth of so sickly a disposition that in his boyhood he was considered unfit for military service, and similar was the case of Prince Eugene.

In our time Turenne would certainly have been rejected by the Medical Board, but he rose nevertheless to be the greatest of the captains in that epoch of great captains—the reign of Louis the Fourteenth. It is written of Turenne that he did not look upon war as a mere succession of battles and sieges, but he trusted much to results gained from movements and marches. He preferred the sinuousness of the serpent to the shock of the sledge hammer.

To mathematics and ethics we are told that, like the great Frederick, he felt a decided aversion, but he eagerly read Cæsar, Quintus Curtius and the life of Alexander of Macedon, just as in later times his own operations formed the study of Napoleon.

Turenne served in the ranks as private and non-commissioned officer, which took the place of our polytechnic schools and military academies.

But if such men began at the beginning they were speedily lifted out of barracks by their own merit as well as by noble connections and princely patronage, which served mightily to shorten the road to high command. Turenne with all his military tastes and capacities, combined study with practice, books with campaigns.

There is little left to us but study—of a man who was four years a captain, four years a colonel, three years major general, five years lieutenant general, and a marshal of France at the age of thirty-two, about the period when in our service he would be thinking of getting a bar in his shoulder strap with another, if in good luck, at forty.

It is well to recollect that Turenne was not always successful, but he never was bothered with a committee on the conduct of the war to black list him for it. He did much with small resources, and that is the best evidence of true generalship. And he learned how to do this both out of books and under canvas,

though the books were not furnished from the A. G. O. nor bought from any post fund.

Passing from Turenne to the French Revolutionary generals, we must remember that under the monarchy the state of things was at least half told in the West Pointer's lament,

"In the army there's sobriety—
Promotion's very slow."

In fact the latter was limited to sixteen quarterings or four generations of so-called noble blood, and the Engineer Corps of that date footed the list precisely because there was too much study required to become an engineer officer. Study, to the ordinary military aspirant, was a thing very much off color. He preferred to devote himself to dress and decoration, as in the days of the later decadence of the empire his successors started for Berlin with hearts as light as their muster rolls, and more careful about toilets than depots.

But when title and privilege went down under the assault of the Third Estate, and the pressure of hundreds of years of monopoly of rank was removed, the outburst was tremendous. Private, corporal and sergeant came to the front from every side and demonstrated over and over again that martial excellence, like every other, is confined to no class and runs exclusively in no families. In fact, an abnormal development, whether of grain or of generalship, is more apt to be followed in the same field and lineage by as abnormal a famine. Of Hoche, described as general, organizer, administrator, politician and statesman, who displayed all the attributes of greatness in his very brief career, we are told that his lack of means was such that he spent every spare hour in manual labor, working incessantly to obtain funds for the purchase of books, which he read and studied the whole night through.

One would be glad to know what these books were, but with the usual contempt of "standard history" for homely details we are left to conjecture.

Hoche illustrates the varied and multifarious duties that may devolve upon a general, and a fit preparation for which requires far more than the technical studies of his own trade.

He was, we are told, a politician in La Vendée, a naval officer at Brest, and an administrator on the Rhine. He was skilful in conciliation—a gift not seldom put into exercise by military men,

as General Scott is a witness, and which demands a knowledge of men and the influences that can to advantage be brought to bear upon them—personal, social and political. This is rather the specialty of a lawyer, as when Choate had to do with the foreman of a jury who was a most orthodox deacon.

It was necessary to prove that the jostling of a girl on a street of Boston by a priest was not malicious or intentional, and Choate is described as bringing his sad, solemn, wrinkled face in close proximity to the deacon, and saying: "I have, I trust, established to your entire satisfaction that this encounter was an accident, such an accident, Mr. Foreman, as might have happened to you or to me on our way home from a Jenny Lind concert, or what is infinitely better, the weekly meeting for prayer." It brought the verdict, just as General Grant's proposal to move immediately upon the works brought the surrender.

It is a pleasure to recollect that Hoche, great though he was as a general, was no less so as a peacemaker. And he died at the age of twenty-nine.

Another of these Revolutionary chiefs was Marceau—likewise noted for his diligent application to books as well as to military exercises. There is no more attractive character among the heroes of France. With all the military virtues he combined others not often found among the ambitious soldiers of that era.

Unselfish, generous, submitting to any annoyance himself if others might escape, and finding pleasure in self-denial, he lived only twenty-seven years, but they were years filled with respect and love. His epitaph was—"Here lies Marceau, a private soldier at sixteen, a general at twenty-two. He died fighting for his country. His mourners were two hosts, his friends and his foes."

It was Marceau who applied to be reimbursed for several horses shot while ridden by him in battle. His application was ignored, and Carnot, the war minister, asked why. "Because the applications were not duly made out in proper form."

"Well," was the answer, "the general fortunately does not appear to be so very particular about having his horses killed under him—send him the money at once."

We can imagine how the treasury circumlocutionists must have writhed under this disrespect to red tape. The ordinary width of this article is bad enough, but when it gets to be double and triple under the pull of some lunatic who is trying to make both table cloth and blanket of it, we sigh for the sense of Carnot.

Many of the companions of Napoleon were men of very limited education. They were developed in the campaigns that filled the emperor's life and their books were platoons, battalions, brigades, and divisions, but this was an exceptional time and theirs an exceptional opportunity, when selection of the fittest was made by the guillotine on one side and a nation under arms on the other. The winnowings came to Napoleon's hand and reward followed efficiency with a certainty and swiftness that made available for him all there was in a man.

The greater number were soldiers simply capable of intelligent obedience and that of itself goes a long way when Napoleons are to the fore. All history down to our own times shows that a commander of the imperial sort favors subordinates who will thoroughly carry out his own ideas rather than those who obtrude upon him their original objections and preferences.

But the men nearest Napoleon, who were most trusted and were capable of independent service, were students as well as soldiers and did as much thinking as fighting.

Coming up the road to the present we stop before the figure of Von Moltke. In the popular estimation he was a species of recluse, buried among maps, plans and calculations, reducing contingencies to system and exhausting possibilities by rule, formulating the whole in schemes and filing them away for future use. Does France become restive? Never mind, look in drawer three of tier four. Is Italy troublesome? Pull out drawer sixteen of tier six. Has Austria threatened? Turn to number one. Is Russia plotting? Consult tier two.

In like manner General Scott was reported regularly to do the anaconda business when the newspaper men interviewed him as to what was in store for rebellion. Getting down from these romantic heights let us look in upon Moltke as he was. We read that he had favorite texts from Scripture, nor does he appear to have considered God as always in partnership with the strongest battalions. That was reserved for Voltaire.

But Von Moltke had written on the blank leaf of his Bible, "My strength is made perfect in weakness."

His favorite books were those on history and philosophy. He liked sound humor and read Dickens and the Buchholz Family, these last being burlesque sketches of middle class life in Berlin, which, moreover, much interested the grim Bismarck.

Von Moltke had a profound feeling for the beauties and

harmony of poetry and in the last years of his life was still translating into German—what? Nothing less than the lyrics of Thomas Moore.

He always labored whether in prose or poetry for the utmost precision of thought, as a man who dealt with facts in their exact size with no adumbration whatever of prejudice or fancy, hope or fear. And that is the highest quality of a general, and can be shown in the translation of a line of Horace as well as in the assembling of an army.

Von Moltke took great pleasure in drawing and music, preferring melody to skill and a concord of sweet sounds graduated to the parlor rather than expanded through the hall. And it is very consoling to know that he liked whist and was a poor player, as Napoleon was of chess. Better yet, Von Moltke lost his temper, as so many small and great have done, over the ill luck that cards, if not campaigns, occasionally brought him.

It would be unkind to fail to state that he submitted with great reluctance to the so-called claims of society and that his strategy was never so finely displayed as in his secret instructions to his servants to cause the carriages of guests to be brought round and announced at the earliest possible hour.

No wonder he lived into the nineties and took Germany up to the Rhine.

Let, then, our ascetic tacticians and our grave strategists, forever busied with men, miles and minutes, stop awhile and think of these marvellous combinations of Ossian and Napoleon, Burns and Washington, Von Moltke and the twenty-fourth Psalm.

Probably we have gone far enough in the matter of illustration to establish the main position of this paper that military reading, or rather the reading of military men, is not to be confined to the proceedings of Tactical Boards nor stop with the memoirs of generals and the history of states. On all sides it must be pushed out to connect, not only with related subjects, but with the whole literary domain. The broader the knowledge, the higher the range of attainment, the clearer will be the outlook and the surer will be the conclusions in any particular part.

There is no fear that there will not always be a fair supply of what we know as rigid disciplinarians, the man who counts buttons and measures the step, and can put his finger on any given regulation or order in the dark, but it will never do to forget that the coat is under the button and the man under the coat, that the

step has its value only as a constituent of the campaign, and that anybody can obey an order, it being most essential to know when an order is best obeyed by disobedience. Battles have been lost for lack of that knowledge.

Precedents are not to be copied but applied. One might as well expect to twice hold exactly the same hand at whist as to find an exact duplicate of circumstances into which to fit his example.

In the safe custody of tradition we read of an officer, now and then, like one who, it is reported, had drilled his regiment into such a state of insensibility—perfection he called it—that once when his horse fell with him pinning him to the ground in front of the command nobody dreamed of moving to his assistance. It was not provided for in the tactics. So the line continued its march straight to the front and as it advanced to within some ten yards of the colonel he poked his head far enough out of the dust to give the order, "Third Company obstacle—march!" The Third Company fell to the rear, and having passed the impediment received from it the further command, "Third Company into line—march!" which was duly executed.

By this time the horse, at all events, recovered his senses and let the rider up, who rejoined his line of battle and commenced the next manœuvre.

There was another officer who, as an introduction to a certain day's lesson, started round the old Academy riding hall to show the cadets how the thing was done. At the last corner his horse tripped and fell, and great was the fall thereof, for horse and man were the very heaviest of their respective sorts. But nothing daunted, the captain freed his mouth from the tan bark and shouted, "Next!"

For the captain was familiar with the story of the colonel, and he put his reading into practice as all reading men should do.

It will not be a loss of time to recall the account of General Wolfe. Floating down the St. Lawrence, through the silence and darkness, leading the column of boats that bore his men onward to the heights they were to scale that morning, Wolfe repeated Gray's *Elegy* to the officers about him with the prophetic verse,

"The path of glory leads but to the grave."

And at the end of the recital he said, "Rather would I have written those lines than take Quebec."

It will not then be astonishing to learn that General Wolfe had no early education, and was so sensible of this defect and determined to overcome it that he took up the study of Latin and faithfully read Homer and Marcus Aurelius, and a better manual of conduct than that of the latter it would be hard to find, short of the Sermon on the Mount, as for instance, "Practise thyself even in the things which thou despairest of accomplishing. The left hand, which is ineffectual for other things by want of practice, holds the bridle more vigorously than the right hand, since it has been practised in this."

An officer who once served under Wolfe states in his autobiography that, brought to the notice of Wolfe, the general interested himself in his welfare and made him read not only military works but philosophy and history. "The general," this officer goes on to say, "gave me liberal notions of every kind, unprejudiced my mind, advised me in everything, made me popular in my regiment and gained me friends."

Take note of the phrase "unprejudiced my mind." That is the most important part of education and a process not so common in the service as it should be, to which books, liberally selected and well studied, do most especially contribute.

For as has been said elsewhere, and cannot be too often repeated, it is the nature of every profession which is allowed to continuously and solely monopolize the faculties, to dwarf mental growth in every other direction, just as universities have sent out men who could pour forth floods of learning upon Greek particles, accents and affixes, and yet had never looked up to the sky from their lexicons sufficiently long to know the difference between a planet and a star, between a moon and a comet.

The pig with his nose to the ground fills his belly full of acorns, but even he would make much sweeter pork if he could "unprejudice his mind" and extend his investigations to other fields, orchards and gardens at the risk, too, of picking up a chestnut or so on the way.

We have very largely and freely quoted from our own books in the preparation of this paper but now at its close we find something so appropriate in the life just published of the late Bishop Polk, general of the Confederate army, that we give the extract entire, concluding this part of the subject.

"Nevertheless he"—the bishop—"felt that the course of the Military Academy would be improved, and that its scientific

purpose would not be marred, if the cadets had more of the classical and literary instruction which is part of the usual preparation for other professions.

"He fully recognized the necessity of giving a special direction to the course of study to be pursued by men intended for a particular profession, but he was firm in the conviction that the professional man ought always to have a liberal education and he thought that every gentleman ought to have at least so much acquaintance with every branch of human knowledge as to be capable of intelligent sympathy with the pursuits and thoughts of other educated men of any profession.

"He observed too that the isolation of technical schools, whether military, medical, legal or theological, each by itself, tends to foster a narrow spirit of professional conceit which would be less likely to exist if the professors and students of the different faculties were in daily contact with each other."

So far the bishop, and most remarkable it is, since his own profession is precisely that which suffers most from its habit of looking over the shelves and through the windows of some theological seminary. The defect he seeks to remedy is with us partly in process of removal by the introduction of military training into our schools and colleges and the enlarged association of officers with the faculty as instructors in Military Science.

The body and the mind are on exactly the same footing. There must be in both cases a general as well as special development in order to get out of muscle and brain the best results.

What the special education of academies fails to do must be done afterward by the continued and uniform exercise of all the gifts that God has given us. The world is the school—life is the term and every individual soul always and everywhere a learner.

THE SURGICAL SIGNIFICANCE OF THE NEW SMALL CALIBRE RIFLE.*

BY FIRST LIEUT. HENRY R. STILES, ASSISTANT SURGEON, U. S. A.

IN the introduction of reduced calibre, as in the adoption of the repeater, it is France that has taken the initiative. Influenced by the results of experiments made by Hebler and Rubin, she adopted an 8 mm. repeater, the Lebel, in 1886; and led by the proofs that have been submitted as to the increased fire-power of the small calibre arm, all the states of civilization have followed, or like ourselves, are following in her footsteps.

It is to the introduction of the repeater that we are in no small measure obligated for the modern reduced calibre. With the adoption of a gun firing several shots in rapid succession, a lighter cartridge became a necessity. The benefits of rapid fire were neutralized, if the soldier could not carry ammunition enough to meet the demands of the weapon. As an increased number of rounds could be carried only by reducing the weight of the cartridge, and as diminution of weight could be effected only by a reduction in size, the small calibre resulted as a natural consequence. But with the reduced weight of the bullet and the limited room for the charge in the small shell came the need of an explosive more powerful than black powder, to impart the required energy to the projectile. As a result, we have the high power, smokeless powder of the present. It was then found that the bullet of pure lead would not stand the pressure to which it was subjected in the gun, that it fouled the piece and that it did not take the direction of the bore; and influenced by these facts and by the fact that increased penetration was wanted, the armored bullet, with a mantle of steel, copper or nickel was substituted for that of unprotected lead. The result of this process of evolution is the modern military rifle and cartridge.

Reduction of calibre has gone on steadily, but it is a question whether the limit has yet been reached. Italy and Roumania have adopted a calibre of no more than 6.5 mm., our own navy will use a calibre of only 6 mm., and Krnka and Hebler have obtained ballistic results with a bullet of only 5 mm. calibre,

* Read before the 8th Cavalry Lyceum, Fort Meade, S. Dak.

which are unapproached by projectiles of larger size. To-day most of the weapons in use are under 8 mm., as the table on page 1145, giving the more important data in connection with the arms of the principal European nations, shows.

Our present knowledge of the surgical results of this diminution of calibre is based for the most part on theory, and the results of experiment on the bodies of men and animals. Much has been done in this direction in past years, and the work, begun by Rubin and Hebler, and carried out in France by Chauvel and Nimier, Delorme and Chauvasse, by Bruns and v. Bardeleben in Germany, by Habart in Austria, and latest of all by Dr. La Garde of our own service, has been of great value in substantiating theory and establishing facts. The Mannlicher, 7.6 mm. calibre, with steel mantled bullet, was used during the late civil war in Chili, and the reports of Passed Ass't Surgeon Stitt, of our navy, of Hervé and of Rivero give us almost our only account of the use of reduced calibre in actual warfare. Cases of suicide and accidental shooting, reported for the most part from England and Germany, and the account of a street-fight in Biala submitted by Bogdanik, have added a little to our practical knowledge. But any discussion of the subject must be based largely on theory and the results of experimental work.

Let us first contrast the new weapon and its projectile with the old. In the new Springfield, as I shall call the modified Krag-Jorgensen gun adopted by the Small-Arms Board, we have

A calibre of 0.30 as compared with 0.45.

A bullet made up of a German-silver mantle, enclosing a lead core, and weighing 220 grains, in place of a bullet of compressed pure lead, weighing 500 grains.

An initial velocity of 1960 ft. per sec. at 53 ft. from the muzzle (equal to a muzzle velocity of about 2000 ft.), as against a muzzle velocity of 1301 ft. per sec., with range* and penetration correspondingly increased and trajectory diminished.

A rapid-fire, magazine arm, using a charge of between 34 and 37 grains of smokeless powder,† versus a single shot weapon, charged with 70 grains of black powder.

* The ultimate range of the new gun is not yet determined. The Danish Krag-Jorgensen, 0.315 cal., with a bullet of 227.68 g. and an I. V. of 1968 foot secs., has a maximum range of 3830 yards.

† The absolute powder charge of the new gun is not yet determined, but will probably be within the figures named. It must produce a velocity of 1960 ft. per sec., at 53 ft. from the muzzle, with a *maximum* chamber pressure of 38,000 lbs.

THE SMALL CALIBRE RIFLES OF THE PRINCIPAL EUROPEAN STATES.

[From Hobart: *Das Kleinwaffen*, 1894.]

STATE.	NAME.	CONSTRUCTION.	CAL. IN MM.	CORE	MANTLE.	WEIGHT IN G.	LENGTH IN MM.	INITIAL VELOCITY IN M.	INITIAL ENERGY IN KGM.	INITIAL ENERGY PER SQ. CM.	POWDER.
Austria-Hungary.	M. 1888-90	Mannlicher.	8	Hard lead.	Steel.	15.8	31.8	620	399.6	616	Gun-cotton.
Germany . . .	M. 1888	Experimental Commission.	7.9	Hard lead.	Copper-nickel Millechort. [Pr.]	14.6	32	620	286.1	283.6	Gun-cotton.
Russia.....	M. 1891	Mosim.	7.62	Hard lead.	Copper-nickel.	13.86	30.5	620	271.6	595.6	Gun-cotton.
France	M. 1886	Label.	8	Hard lead.	Copper-nickel.	15	31	632	305.4	607.6	Gun-cotton.
Italy.....	M. 1891	Experimental Commission and Mannlicher.	6.5	Hard lead.	Copper-nickel.	10.5	30.5	700	262.2	790.4	Gun-cotton-nitro-glycerin. [ballistic.] Gun-cotton Cordite.
England. . .	M. 1889	Lee-Metford.	7.7	Hard lead.	Copper-nickel.	14	670	320.4	688	Gun-cotton.
Turkey.	M. 1890	Mauzer.	7.65	Hard lead.	Steel-nickel.	14	30.7	652	303.4	660	Gun-cotton.
Switzerland . .	M. 1889	Schmitz-Rubin.	7.5	Hard lead.	Point of steel.	13.7	28.7	600	351.4	569.1	Gun-cotton.
Spain.....	M. 1892	Mauzer.	7	Hard lead.	Copper.	11.2	30.38	659	275.8	716.6	Gun-cotton.
Belgium.....	M. 1889	Mauzer.	7.65	Hard lead.	Copper-nickel.	14.2	30.5	610	269.4	586	Gun-cotton.
Holland. . .	On trial	Mannlicher.	6.5	Hard lead.	Steel-nickel.	10.5	41.4	730	283.2	859.6	Troisdorf Gun-cotton.
Denmark.....	M. 1889	Krag-Jorgensen.	8	Soft lead.	Copper-nickel.	15.43	30	600	283.2	563.4	Gun-cotton.
Romania. . .	M. 1892	Mannlicher.	6.5	Hard lead.	Copper-nickel.	10.32	31.2	728	272.9	622.9	Gun-cotton.

In brief, then, the new gun gives us reduced calibre, increased range, velocity and penetration, a hard mantled bullet, rapid fire, smokeless powder; all of which are factors of importance from the surgical point of view.

The following table contrasts the velocity of the old and new projectiles at different ranges (Capt. La Garde, in his report to the Surgeon-General, 1893).

VELOCITIES OF THE OLD AND NEW PROJECTILE.—TABLE 3.

Bullet.	Range.				
	I. V.	500 yds.	1000 yds.	1500 yds.	2000 yds.
.45 cal.	1301	873	676	531	429
.30 cal.	2000	1103	804	627	495

The character of a bullet wound depends on the weight, form, density and velocity of the projectile, and on the hardness and resistance of the part hit. A large, soft, conical ball moving at a moderate velocity (the present carbine or rifle ball, for example), produces wounds with the character of which all the older men in the service are familiar. A flesh wound made by a bullet of this character looks very much as follows:

The wound of entrance is about as large as the bullet. Its edges are a little depressed and it is bordered by a ring of dark, discolored skin. The wound of exit is always larger than the ball. Its edges are everted and are usually much torn and crushed. The wound canal is not smoothly cut. Its walls are more or less lacerated.

If a bone has been struck it is always splintered, unless the velocity of the bullet has been reduced by a long flight; and the soft lead, rendered still softer by the heat generated during its flight through the air (a much over-estimated fact by the way), and at the moment of striking, is distorted by the contact, loses its regular outline and makes a frightful wound of exit, excavated, torn and ragged, through which pieces of the broken bone may have been driven.

If a closed cavity of the body, for example the skull or the chest, is penetrated, if a hollow organ is shot through or a joint hit, the bullet produces explosive effects. The skull is fractured in many places, the lungs are torn and lacerated for some distance about the wound canal, and a joint is literally torn to

pieces. This explosive action is brought about by the sudden increase of pressure produced by the entrance of the bullet, and the almost instantaneous transmission of this pressure according to the laws of physics, by the fluid in the cavity or tissue. The ball, entering a cavity filled with a fluid or semi-fluid, or piercing a fluid-containing tissue, displaces a part of the contents of the cavity, or of the tissue, equal to the bulk of the bullet, thus setting up a pressure which, together with the impact-force of the ball, is transmitted in all directions in accordance with the laws of hydrodynamics. And this pressure, exerted as it is with terrible suddenness, is sufficient to rend the more or less inelastic bounding walls of cavities or to tear the soft moist tissues, as if the ball had been an explosive one. The escape of even perfectly fluid contents from the hole of entrance is not sufficiently rapid to relieve this suddenly-exerted pressure and prevent explosive action. In the case of a cavity filled with a pasty, semi-fluid mass, like the brain, any such equalization of pressure is out of the question, because of the density of the mass. Explosive action takes place not alone in fluids or semi-fluids contained in cavities, but in any moist substance enclosed in more or less resisting walls. We find it occurring when the marrow cavity, or even the spongy head of a bone is hit; or when an organ rich in blood, like the liver, has been struck. No explosive effect is produced in dry tissues. There must be moisture present to bring it about. This is well illustrated by shooting at two tin cans, one filled with dry cotton, the other with wet. The ball passes through the can filled with dry cotton with no other effect than the production of a clean hole, while the can filled with the moist cotton is torn to pieces when struck by the bullet. It is this explosive action, or, as it is sometimes called, hydraulic pressure, that causes the frightfully lacerated wounds of the joints and skull, so often seen after injuries with the old large calibre bullet. The force with which it is exerted depends on certain factors (v. Bardeleben). The greater the amount of moisture in the part hit, the nearer its approach to absolute fluidity; the greater the velocity of the projectile and the greater the extent to which it is deformed in entering the cavity or tissue, the greater is the explosive action. And we have in the fluid or semi-fluid tissues in the cavities of the body, and in the soft, easily deformed bullet at present in use, two pre-requisites for a high degree of explosive working.

A ring of dark, discolored skin about the wound of entrance, was mentioned in speaking of wounds of the soft parts. This dark zone is tissue killed by the crushing and concussion of the penetrating bullet. It is dead tissue and must disintegrate and come away before the wound can heal. Other things being equal, the narrower this zone the more rapid is the healing. Experiment has shown that this zone of dead tissue is the more extensive the greater the impact surface of the bullet, *i. e.*, the larger the calibre, the slower the speed (on the principle that the motion in the case of a wound, that is, the concussion imparted to a fixed body by a moving one, is inversely as the velocity), and the harder the surface hit.

Bleeding from wounds caused by such a bullet as we are considering is comparatively slight. A lacerated, torn surface bleeds very little as compared with a clean-cut one, and, as has been said, the wounds made by the soft, slow-travelling bullet are lacerated. Large vessels are cut with comparative rarity. They are, as a rule, located in yielding tissues, and are often pushed aside by the bullet instead of being severed. They may, however, have suffered so much by the shock of contact as to lose their vitality, and the dead walls, slowly disintegrating, may give way during the healing process and be the cause of dangerous hemorrhage.

We find, then, wounds produced by a bullet like the one at present in use in the service, characterized by a broad zone of devitalized tissue about the wound of entrance; a wound canal lacerated by the easily deformed ball; bones nearly always extensively splintered; great explosive action; a wound of exit much lacerated and gaping widely, and relatively little hemorrhage.

Bearing these characteristics in mind, let us now take up the wounds made by the new small calibre mantled bullet, travelling at a much higher velocity. In his exhaustive study of the subject, Habart has divided the range of the modern weapon into four areas or zones, *viz.*:

- 1st. Up to 500 yards, the zone of close range.
- 2d. Between 500 and 1200 yards, the mid-zone.
- 3d. Between 1200 and 2000 yards, the long range zone.
- 4th. To include the rest of the flight of the ball, the zone of extreme range; and as such a division is of convenience, it has been adopted here.

First as to wounds of the *soft parts*. The wound of en-

trance is as a rule a circular hole, as clean cut as if made with a punch. With the 8 mm. bullet, striking at right angles to the part hit, it usually measures 4 to 6 mm. in diameter, and in the regions where the skin is very elastic, as about the neck, in the armpit or groin, or over the abdomen, it may be as small as 3 mm. With an obliquely striking ball the wound may be oval and of greater size. Referring to the statement just made that the larger the calibre and the less the velocity, the greater the laceration of tissue about the edge of a wound of entrance, we should expect to find much less dead tissue about the wound made with the new small calibre ball, travelling at high velocity, than about one made by the old. And this expectation is satisfied. The amount of tissue-destruction about the entrance-wound is insignificant. Even at ranges as short as 100-200 yards, this zone does not measure more than 1.2 mm. in breadth. The edges of the entrance wound are usually a little inverted, and if there has been explosive action in the tissues, they may be somewhat swollen. At times the point of entrance is represented by a slight slit or fissure, so much resembling a stab as to be taken for a bayonet wound, and so insignificant as to be found with difficulty.

The *exit-wound* is in decided contrast with that made by the old bullet. It is ordinarily a round opening, larger than the wound of entrance (5 to 11 mm. in diameter), is but slightly lacerated and its edges are not commonly everted. There may be a little raylike splitting or fissuring of the skin about the hole, but there is none of the extensive tearing seen with the old bullet. At ranges beyond 800 yards the wound is usually a simple slit, which closes instantly, and is hardly to be seen. If explosive action has taken place in connection with bones, the exit-wound may be 1.5, 2, 3, 4 cm. or more in diameter, and may be filled with bits of the tissues, both bony and muscular. But it is never as large or as much lacerated as is the wound of the larger soft ball under the same circumstances.

The wound-canal in the tissues is a clean, smooth hole, a little smaller than the ball that produced it. The natural elasticity of the tissues causes it to close at once and so completely that it is often a matter of some difficulty to trace the course of the ball through the muscles in post-mortem examinations.

We have, then, a wound of the soft parts as clean-cut as if made with a knife, in most cases; a wound of entrance so small as to materially hinder infection; a smooth canal lined with the

minimum amount of crushed tissue, and self-closing ; and an exit-wound but little larger than that of entrance, and often a mere slit ; a wound, in a word, offering the best possible conditions for rapid and perfect healing.

In considering the effect of the new ball on the bones, it will be well, for the sake of convenience, to divide them into two classes ; the long bones, as the bones of the arm or leg, and the flat bones, of which the shoulder-blade, the breast-bone and some of the bones of the skull are examples.

Within the first zone, that of explosive effect (up to 500 yards), the new ball produces extensive splintering of the shafts of the long bones, the part being often ground to a coarse powder (graphically described by the Germans as bone-sand), for some distance above and below the point hit. The exit-wound often preserves the original circular character of the wound of entrance, but may be a torn, lacerated, funnel-shaped opening, in case the fragments of the broken bone have been forced through it. It is commonly filled with bone-sand and small splinters of the fractured shaft. The more spongy and less brittle ends of the long bones are not so much splintered, and the ball may pass through cleanly, making a simple hole. The flat bones are simply pierced, with at times radiating cracks about the hole. As these bones offer decidedly less resistance, there is none of the splintering seen in the denser shafts of the long bones. The bones of the skull are, as a rule, simply perforated at the point of entrance, but the ball exerts decided explosive action, and indirect fractures, at points remote from the entrance wound, are the rule.

Within the second zone (500 to 1200 yards), splintering also takes place in the shafts of the long bones, but the splinters are larger, fewer in number and less displaced, and there is less of the bone-sand. The exit-wound in the soft parts is not as ragged and does not, as a rule, contain comminuted bone. The ends of the long bones are perforated with perfect cleanness. There is none of the splintering, comminution and scattering of fragments always caused by the old ball at these ranges.

At the ranges included in the third zone (1200 to 2000 yards), the shafts of the long bones are splintered, but the splinters are still larger and less displaced than in the second zone. Bone-sand is produced in moderate quantity. It has been claimed that in this zone the shafts of the bones were simply perforated and that splintering did not occur, but the weight of evidence seems

to be all against this, though, without doubt, it does occur at times. The wound of the soft parts, made in connection with a fracture in this zone, is so insignificant as to be no guide in judging of the amount of damage done. It may be very like the simple flesh-wound in the size of its entrance and exit holes, if the ball has not been broken up by its contact with the bone.

In the fourth zone the new bullet loses a little of its favorable character and extensive splintering and comminution again appear. Several reasons are given for this, among others the fact that the angle of impact at long ranges is such that the bone is struck obliquely as regards its long axis; also, that in some cases the ball begins to somerset and may strike sidewise; again, the ball has lost the greater part of its progressive velocity at these ranges, while its velocity of rotation is as great as ever. In striking, a torsional effect is thus produced by the ball, which is usually checked by the resistance of the bone, and splintering is thus brought about.

As regards the action of the bullet on the vital organs. The heart itself is either simply pierced, or there are evidences of explosive action if it is struck while its cavities are filled with blood. Widespread explosive action is rarely to be seen in the lungs, the wounds being smooth as a rule and so perfectly closed by the elastic lung-tissue that they are very hard to find. They bleed very freely.

Wounds of the abdomen made by the new ball will, with little doubt, be the most fatal of the injuries that it produces. The relatively large areas of this portion of the body increases the chances of its being hit by the unaimed balls fired at extreme ranges, and its walls are so thin that the ball will pierce them at tremendous distances (3000 to 4000 yards). The insignificant skin-wound gives no clue as to the injury that the ball has produced. With a wound that seems ridiculously small there may be extensive laceration of the liver or other large organs of the abdomen, the stomach or intestines may be opened and their contents allowed to escape into the abdominal cavity, or a vessel may be cut and free and fatal hemorrhage be the result. The murderous character of injuries of this kind is sufficiently illustrated by the fact that since the introduction of reduced calibre, there is not on record a case of undoubted perforation of the stomach or intestines with the small bullet, that has recovered. This source of great mortality can be successfully contended with

only by immediate operation, and it will be the duty of the military surgeon of the future to be perfectly at home with the details of abdominal surgery and to acquire and keep up the technical and manipulative skill indispensable for such work.

Bleeding from wounds made by the new ball will be much freer than from those caused by a soft bullet with less velocity. The wound is a clean-cut one and bleeding is favored. The velocity of the bullet is so great and the bullet is so hard that vessels struck with it will be cut as with a knife. There will be no pushing aside of the vessel, as sometimes happened in the case of the old ball, no concussion, with later bleeding. The vessel will be cut and hemorrhage will be immediate and free. If the vessel injured is a large one and is near the surface, death may follow with frightful rapidity. The viscera will no longer be able to slip away from the ball, as they sometimes do when they come into contact with the slower-travelling bullet, and the cutting of a vessel of insignificant size in the abdominal cavity will cause death from hemorrhage, if operative help is not at hand and quickly given. It is not to be denied that the old ball, if deformed, would be a greater danger to the vessels in the vicinity of the part hit than the smooth mantled bullet; and in view of this fact and the fact that it is a hard matter to get reliable statistics as to the number of deaths to be ascribed to immediate hemorrhage in battle, it is at least an unsettled question whether, in spite of its increased tendency to cause bleeding, the new ball will be any more destructive in this respect than the old. One point in this connection is in favor of reduced calibre. The small wounds of entrance and exit made by the new ball may plug with a clot, and hemorrhage from small vessels may be thus spontaneously controlled.

Of the factors increasing explosive action, increased velocity and deforming of the bullet were mentioned. In the case of the new ball the increased explosive action caused by increased velocity, is more than offset by the fact that the bullet is less liable to become deformed; and its explosive action is on the whole less marked and not as uniformly manifested as is that of the old. It is chiefly in the skull and in connection with the bones that it does occur, and its results in these cases, while less severe than those produced by the old ball, are by no means to be lightly regarded.

We may sum up the action of the new ball, then, by saying

that it produces clean-cut, slightly lacerated wounds of the soft parts, exerts less explosive action and splinters and displaces bones less (except at short ranges). Its wounds offer the best possible conditions for rapid and perfect healing, being small, aseptic as a rule, and clean cut. But they are prone to bleed freely and at once.

Up to within a short time it was believed that the new ball would never remain in the body under 1200 yards; and this may be accepted as the fact for the most part. But the bullet can and does remain in the body even at very short ranges. Experiments made by Bruns show that at 100 yards the Mannlicher ball will pass through three or four files of a company in column. Such a ball would lodge and remain in the body of one of the rear files. Again, a ball that has lost force through a ricochet might remain in the body at ranges a good deal less than 1200 yards.

We have little but theory to guide us in considering the shock, the stopping power of the new bullet. Leaving all else out of the question, the shock produced by a bullet would depend on the energy it was capable of exerting, and as is shown in the following table, taken from Captain La Garde's report, the energy of the old bullet is greater than that of the new, at all ranges beyond the muzzle.

ENERGY OF THE OLD AND NEW PROJECTILES, IN FOOT POUNDS.
TABLE 4.

Bullet.	I. V	Weight.	Muzzle.	500 yds.	1000 yds.
.45 cal.	1301	500	1879	846	507
.30 cal.	2000	220	1957	594	315

But other factors besides energy influence shock. The larger the wound, the greater the laceration, either of bone or soft tissue, the greater the shock. The new bullet, then, producing small wounds and little laceration, would cause less shock. And this theoretical estimation is largely borne out in practice, as the reports of cases show.

The conclusions to be drawn from what has so far been said of the new bullet might lead one to ask, "Is not the new weapon a less efficient one than the old, since the wounds it produces are less severe than those made by the weapon that we are discarding?" Before replying to this let us consider the use of the new gun in actual warfare.

First as to the number of wounded. Increased range and accuracy will cause the battle to begin earlier and at greater distances, and the men will be longer under fire. The new rifle being a rapid-fire, magazine arm, shoots more bullets in a given time. The men also carry more cartridges. Hence the total number of shots fired during a fight will be increased. The new bullet has vastly greater penetration, passing clear through the body at ranges at which the old ball rebounded from the skull or breast-bone, while at short ranges a single ball will pass through the bodies of three or four men. Smokeless powder gives increased accuracy of fire. These facts give ground for the statement that the actual number of wounded will be increased. But a question arises as to the number of hits one may expect with the new rifle. The soldier under fire with a rapid-fire arm in his hand and an increased supply of ammunition at his disposal, will need careful disciplining to prevent his using the gun to its full capacity at times when such use of it is mere waste of ammunition; and it is at least an open question whether a part of the increased number of bullets fired from the new gun will not be fired with such rapidity and carelessness of aim as to bring the total number of effective shots in a fight to nearly the figures that have ruled in the past. In many cases, fire will be opened at such ranges that any accurate aim is out of the question, and such hits as are made at these great distances will be purely accidental and few in number. Wolczko estimates the total hits at all ranges, with the modern weapon, as 1 in 500 shots fired.

Statistics, on their face, do not support the idea that the number of killed and wounded must of necessity be increased because there is increased range, accuracy, and rapidity of fire; on the contrary, they show a diminution in the total loss as weapons have been increased in power and efficiency. For example, the English loss at Blenheim and Waterloo, during the match- and flint-lock period, was 23 per cent. During the Crimea, when the Minie and Enfield rifles were in use, it fell to 15 per cent., while in the Franco-Prussian war, with the modern breech-loader, the loss of the Germans was but 13 per cent. But these figures are estimated with the entire active force as a basis, and it must be considered that in the later battles it was the exception to have the entire force engaged at once, though this happened frequently in the earlier battles. Tactics, too, have had their effect in this connection. As weapons were increased in efficiency, smaller

and smaller masses of troops were opposed to them, until the open order of to-day has replaced the solid column of the beginning of the century. That there will be an increase in the number of wounded with the introduction of the new weapon is not to be doubted. But whether this increase will amount to the vast number that some authors speak of, is a question that time and battle alone can decide.

In considering the number of killed we have figures that help us a little. Rivera reports an average of four dead to one wounded in the Chilian war (v. Bardeleben). The usual ratio has been one killed to five wounded. Death from immediate hemorrhage was the chief cause of this tremendous increase.

As bearing on the question which was at one time raised in Germany, as to whether the small calibre weapon might not be too humane and not destructive enough when opposed to guns of larger bore, a point in connection with the German-silver jacketed bullet to be used in the new gun may be of interest. In Captain la Garde's experiments on the bodies of men, the German-silver mantle was ruptured and separated from the bullet in 10 per cent. of all shots striking bone under 200 yards. Minus its mantle, the new ball is subject to all the deforming of the old. In addition, its torn and separated mantle acts as another projectile, and mantle and bullet, impelled by a vastly increased force, produce wounds never equalled by the old bullet at its worst. Such a deformed ball would be terribly destructive, and the new bullet is pretty certain to be deformed in this way in a certain per cent. of cases at short range. Indeed, any bullet made by pressing a lead core into an envelope, be this envelope what it may, will rupture and deform when it comes into contact with hard objects. It is only the ball that is soldered into its mantle that will pierce great resistances without suffering. I believe that Tailor Dowe would find his armor useless against such a ball. It is this lack of homogeneity in the bullet that enables the hard steel wire or plates in the jute body of his cuirass to rupture the mantle of the Mannlicher bullet and so distort and overcome the velocity of the lead core, that the relatively thin layer of jute and metal are able to bring it to a standstill.

With a mantled bullet ricochet hits are especially to be feared. Contact with any hard substance is sure to split the mantle, and the naked and deformed ball will then act much like the hollow-point express bullet. Bogdanik, writing of a street-riot in Biala,

describes the wounds produced by the Mannlicher bullets, ricocheting from the pavement and house-walls, as more frightful than any yet known in the history of military surgery. Protective works of all kinds will lose much of their value when opposed to the new ball. Brick or stone walls, field trenches, earthworks, are pierced at close ranges and fire concentrated on particular points will produce regular breaches. The fragments and splinters torn from the walls by the bullets will act as so many more projectiles, and with the deformed bullets and the pieces of the ruptured mantles, will turn what was hoped to be a defense into a means of destruction.

Taking all these facts into consideration, the question as to the efficiency of the new gun may, I think, be answered in its favor, especially when it is considered that a *german-silver* mantled bullet is to be used.

But in some respects the new ball is humane. Men wounded with the undeformed ball have a better chance, not alone for life, but for a life of usefulness. Properly treated, its wounds heal perfectly and with surprising quickness. The ball rarely lodges in the body under 1200 yards, unless it has lost velocity in some way. It need rarely be probed for, nor need attempts at extraction be made. Thus one great source of wound-infection will be done away with. The ball may be regarded as a non-infected foreign body when it does lodge, and in the majority of cases will be encapsulated in the tissues and give no further trouble. It passes through the part hit in a perfectly straight line. None of the tissues of the body are hard enough to deflect the uninjured bullet. Hence, knowing our anatomy, it will be possible to tell just what structures have been pierced and to treat the case accordingly. This fact will be of especial value in deciding as to treatment in wounds of the abdomen. Bones and joints are less crushed and torn and the necessity for deforming operations will rarely arise. Useful joints will be the rule where, with the old ball, the injury would have demanded amputation or resection. It is, however, less humane than has been claimed. It will kill and wound more men than the old in a given time and under similar circumstances. When it loses its mantle by impact it causes wounds of a more frightful character than any produced by the old bullet. But the majority of the injuries that it produces at all ranges, offer to the surgeon an extremely favorable field for his labors, while materially lightening them.

THE MULTIPLICATION OF CALIBRES IN FIELD ARTILLERY.

BY CAPTAIN PETER LEARY, JR., 4TH U. S. ARTILLERY.

THE intention of this paper is to determine, if possible, something of the relation which has existed and now exists between the efficiency of field artillery in action and the increase or diminution of the number of calibres of cannon in any system.

The modern organization of armies dates from the time of Charles VIII. of France. This monarch invaded Italy in 1494 with a well-equipped and duly proportioned force of cavalry, infantry and artillery. In this reign and in that of Louis XI., immediately preceding it, two well-marked advances were made in artillery progress; the casting of iron projectiles and the attachment of trunnions to guns. It was with this improved artillery that Charles crossed the Alps in 1494. His success was rapid and complete. Captain Duparcq says: "His expedition into Italy exhibits the first important employment of artillery in a campaign." Recognizing the relation between the organization of artillery and its success in battle, he placed at the head of the corps a general officer who bore the title of the master-general of artillery. The definite foundation of the French artillery dates from this period and all the powers of Europe began the improvement of their systems. Charles entered Italy with 140 pieces, of which 100 were of mean and 40 of large calibre. After a short reign, during which all the advantages of military organization and military success were sacrificed to the licentious tendencies of his nature, he was succeeded in 1498 by Louis XII. During this reign artillery improvement was continued in the direction of mobility. The smaller calibres were made sufficiently portable to take advantageous positions in action. Louis XII. was succeeded January 1, 1515, by Francis I., who seems to have been the first monarch in Europe whose perception of the relation between the number of calibres in his system and its efficiency in battle led to practical results. Controlling France from 1515 to 1547, and engaged in military and

political campaigns to the end of his reign, he found time to make changes of substantial value. La Combe remarks of this period that "instead of that multitude of cannon of various sizes that it was customary to bring upon fields of battle and which did not permit any precision or certainty in calculating the effects of artillery practice, in the French armies the excellent idea prevailed of adopting and adhering to a small fixed number of sizes for cannon." What followed this reduction? Duparcq claims that the battle of Marignan in 1515 was won by the increased efficiency of French artillery and that the disastrous battle of Pavia in 1525, in which the French king was taken prisoner and the French army decisively beaten, was lost by reason of the faulty deployment of the corps of *gensd'armes* in front of the batteries, masking their fire and turning an effective arm into an impediment.

Henry II. continued the work of artillery improvement, and according to Louis Napoleon, was rewarded by obtaining good service from the corps. His army, the largest of the period (1552), consisted of 40,000 infantry, 20,000 cavalry and 60 pieces of field artillery, of the following calibres:—the 34 pdr. cannon, the 15½ pdr. great culverin, the 7 pdr. bastard culverin, the 2 pdr. middle culverin, the 1½ pdr. falcon—five separate calibres. Henry IV. added a three-quarter pdr. to those of Henry II., and in 1609 revived an edict of Charles IX. forbidding the casting of other calibres. This brings us close to the time of Sweden's illustrious king, Gustavus Adolphus.

The pieces in use in the Holy Roman Empire, about the beginning of the Thirty Years' War, included twelve separate calibres, all of which were apparently used indiscriminately for either garrison, siege or field purposes:—the 48, 24, 12, 6, 3, 1½ and three-quarter pdr. cannon, and the 24, 8, 12, 6 and 3 pdr. culverins. The distinction between the cannon and the culverins may be gathered from the differences in length; for instance, the 24 pdr. cannon had a length of from 19 to 21 calibres and the 24 pdr. culverin of from 28 to 30 calibres. Besides the cannon and the culverins, the German system included nine different calibres of mortars. All military historians unite in the opinion that the first part of the 17th century forms an era in the history of artillery. It can be justly said of Gustavus Adolphus, that no other great commander known to history wrought as many changes in the direction of the efficiency of field artillery as did he; not only in

improvement of material, but also in its proper tactical employment. Recognizing the relation of efficiency to the number of calibres and finding twelve in use in the imperial armies of Tilly and Wallenstein, he adopted for his own only six—the 3, 4, 6, 12, 16, and 30 pdrs. He designed the short lived "Kalter gun" for field service. This piece consisted of a thin cylinder of beaten copper, screwed into a brass breech. The chamber was strengthened by four iron bands and the copper tube was covered with layers of mastic. Over the mastic the gun was wound with tightly adjusted cords, then covered with a smooth coat of plaster and was finished with a jacket of varnished leather. This piece was drawn and served by two men. It was first used in his early campaigns in the Polish war and made its last appearance in the battle of Breitenfeld, otherwise known as the first battle of Leipzig, September 7, 1631. In this engagement the Swedish artillery was commanded by Torstensen, one of the best generals in the Swedish army. Tilly's artillery was mainly composed of heavy pieces—guns of position, ranged in a prepared earthwork on a low hill and placed between the right wing and centre. Fletcher tells us that it is impossible to say how many pieces he had; it seems probable, however, from the description of the battle and of the great havoc at first wrought by the Imperialist cannonade, that he had more than twenty-six, which is the number usually given. Gustavus had nearly one hundred pieces in the action, including the batteries of the Elector John George of Saxony, his unstable ally in the campaign. His guns of position were placed in front of the centre in one line; some of his lighter pieces, known as regimental pieces, consisting of the Kalter guns and iron 4 pdrs., were placed in front of the infantry (composed of musketeers and pikemen), and the remainder were disposed in reserve in rear of the centre, the first known instance of the employment of an artillery reserve in battle. Munro tells us that Tilly's artillery fired three salvos into the Allies "before our men were in readiness," which did considerable execution. The brunt of the battle fell on the Swedes, for during the day the whole Saxon contingent, after behaving well early in the fight, abandoned the field leaving their guns in position. Historians speak of the fearful accuracy of Torstensen's artillery fire and Gustavus himself tells us that the artillery duel lasted from midday till half past two, indeed during the whole battle, and naturally did great execution. "Ours answered theirs

with three shots for one." Here we have the first and best fruits of the wisdom of Gustavus in bringing the number of calibres from twelve to six, thereby increasing the rapidity of fire and the ease of supply.

The Swedish artillery covered itself with glory again at the first battle of Lützen, November 6, 1632, under its former chief, Torstensen; for after the killing of the king, when the flower of his army had been cut to pieces, the artillery stood well to its work and kept Wallenstein's forces back until Duke Bernard could make one more advance, and sweep the Imperialists off the field. In this engagement, Wallenstein had about 25,000 and Gustavus about 18,000 men. Wallenstein, however, was reinforced during the day by Pappenheim with some 8000 more—weight and mobility again arrayed against each other, with victory on the side of mobility. In both actions, the Imperial guns were mostly 24 pdrs., requiring 20 horses for pieces and 12 for wagons, and were rarely moved during the course of an action. Those of Gustavus, however, being lighter, were advanced with his infantry and the use of cartridge bags assisted in increasing the rate of his fire over that of the enemy, who ladled their powder into charges during the engagement. In both these battles the Swedes attacked the Imperialists in position and in both the action was opened by the artillery duel.

The influence of Gustavus was not without immediate effect on the French, at that time and for one hundred years, the most enlightened artillerists of Europe. Richelieu added the 24 and the 12 pdr. to the French system of Henry II., but in the way of reduction the only pieces carried with the *fortes* in the field were light pieces drawn by four or six horses. The heavier pieces were not a part of the field artillery system and were used only as garrison or siege artillery. During Vauban's administration of French artillery affairs and throughout the reign of Louis XIV., there seems to have been little or no change in calibres, but a marked change in employment, due to the military peculiarity of the period—which may be called the period of the attack and defense of fortified places. The reign of Louis XV. was distinguished by the administration of Lieutenant General Vallière, who recognizing the wrong direction of artillery development, reduced the calibres to the 24 and 16 pdr. for siege and garrison guns and to the 12 pdr., 8 pdr., and 4 pdr. for the field system; and to make the system effective, a royal decree was promulgated

that those calibres should be exclusively employed in French armies.

Frederick the Great added howitzers and introduced horse batteries, and was largely indebted to his field artillery for good service. His improvements were in the direction of proper employment, for he imitated Gustavus Adolphus in using his batteries in masses and in concentrating their fire. General de Gribeauval, who was the Austrian inspector-general of artillery in the wars against Frederick, utilized his experience in several directions and practically organized a new system for France in 1765 which continued to be the system of all Europe from that time until 1857, with some more or less important changes in 1829 and 1854. The pieces were reduced in length and weight and were mounted on carriages light enough for mobility and strong enough for all conditions of service. The one pounder was suppressed and the calibres retained were the 12, the 8, and the 4 pdrs. To these was added a 6-inch howitzer. The calibres of mortars for siege and garrison were 15, 12, 10 and 8 inches.

The first Napoleon's strength in artillery resulted from proper employment more than from superiority either in guns or ammunition. But what changes he made were in the way of reduction and simplification—for he abolished the 8 and 4 pdrs. and put in their place the 6 pdr.—thus leaving only two calibres for his field artillery. And yet Napoleon apparently did not attach proper importance to his artillery until he had himself seen it, under Senarmont, at Friedland, in June, 1807, turn impending disaster into a brilliant victory. Thereafter his batteries took their proper place in his consideration.

Speaking of the American artillery under Knox, General Hunt tells us, that at the close of that war it was as good as either the French artillery of our allies or the English artillery of our enemies.

In the War of 1812 our artillery, owing to the blunders and incapacity of the War Department, was disorganized, unequipped and useless and the army and the country paid the penalty of the neglect. In the Mexican War in 1846, Duncan's and Ringgold's Batteries were part of General Taylor's force at Fort Brown, opposite Matamoras. I quote from General Hunt's article on Artillery Administration read before the Massachusetts Historical Society in 1888 and published in the *JOURNAL* of the M. S. Institution in March, 1891. "In 1845, two of these batteries, Ring-

gold's and Duncan's, formed part of Taylor's little army of 3000, assembled at Corpus Christi soon after the annexation of Texas. They were received with a good deal of pleasant banter by the infantry and dragoons as being rather useless for field service in a wild country and General Taylor himself looked upon them as a sort of white elephant." It required, however, but one action to show the army what a powerful auxiliary arm it had in its light batteries. General Taylor himself in his report of Buena Vista says "the services of the light artillery, always conspicuous, were more than usually distinguished. Moving rapidly over the roughest ground, it was always in action at the right place and at the right time and its well directed fire dealt destruction in the masses of the enemy." The armament of the light batteries in this war consisted of three 6-pdr. guns (880 lbs.) and one 12-pdr. howitzer each. Congressional neglect and personal and technical considerations operating on the War Department thwarted the efforts of artillery officers to develop and improve our field artillery; but the Ordnance Department in 1857 prepared four gun-howitzers, to replace all other field pieces. This was the piece devised by Napoleon III. and was known in the Civil War as the 12 pdr. Napoleon gun. At the beginning of the Civil War, if the design of the Ordnance Department had been systematically and energetically pursued, we should have had eight homogeneous batteries in McDowell's army in the first battle of Bull Run, all well-instructed, and fitted to equal if not rival the work of the light batteries in the war with Mexico.

What was the equipment of the light batteries in that action? The following information is gathered from the official reports of the engagement contained in Volume II., Series I., Official Records of the Rebellion. This volume embraces the report of Maj. William F. Barry, 5th Artillery, Chief of Artillery, and those of the light battery and section commanders. General Barry reports that the artillery of the *corps d'armée* consisted of the following named batteries: Rickett's light company "I," First Artillery, six 10 pdr. Parrott rifle guns; Hunt's light company "M," Second Artillery, four light 12 pdrs.; Carlisle's company "E," Second Artillery, two James 13 pdr. rifle guns, two six pdr. guns; Tidball's light company "A," 2d Artillery, two six pdr. guns, two 12 pdr. howitzers; Greene's company "G," 2d Artillery, four 10 pdr. Parrott rifle guns; Arnold's company "D," 2d Artillery, two 13 pdr. James rifle guns and two 6 pdr. guns; Ayres'

light company "E," 3d Artillery, two 10 pdrs. Parrott rifle guns, two 12 pdr. howitzers and two 6 pdr. guns; Griffin's battery "D," 5th Artillery, four 10 pdr. Parrott rifle guns and two 12 pdr. howitzers; Edward's company "G," 1st Artillery, two 20 pdr. and one 30 pdr. Parrott rifle guns. The 2d Regiment Rhode Island Volunteers had with it a battery of six 13 pdr. James rifle guns, the 71st N. Y. Regt. two Dahlgren's boat howitzers and the 8th Regt. N. Y. Militia a battery of six 6 pdr. guns, which, its term having expired, "moved to the rear to the sound of the enemy's cannon." Here in the first pitched battle of the war were forty-nine field pieces embracing no less than eight separate calibres, calling for as many different kinds of ammunition, including the light 12 pdr. which had been formally announced as the one fixed calibre for our field system. It is not surprising that General McDowell should report after the retreat to Fairfax C. H.: "We are without artillery ammunition." Of the batteries that went into action the following pieces (28) were captured by the Confederate army—one 30 pdr. Parrott, nine 10 pdr. Parrotts,—three 6 pdr. brass,—three 12 pdr. brass howitzers,—three 12 pdr. boat howitzers,—nine James rifle guns,—37 caissons,—6 forges,—4 battery wagons,—and 800 rounds artillery ammunition—enough to start a small but heterogeneous ordnance department.

General Hunt writes: "Charged with the artillery defenses south of the Potomac after Bull Run, I soon learned that with the exception of the light 12 pdr. battery ['M,' 2d Artillery,—his own] and a few rifled batteries, all our field artillery must be created. Unfortunately we adopted a rifle gun of 3-inch calibre, the feeblest in the world, and our ammunition, of which there was no fixed system, was not good. With uninstructed gunners, the best material is wasted: with poor ammunition the best gunners are at fault. Then the complication from which the Napoleon gun had relieved us—a great variety of ammunition, was brought back with the rifle gun, for which different systems of projectiles, Parrott, Schenkle, Hotchkiss and Ordnance were supplied, which gave different ranges with the same charge of powder. These systems would get mixed in the same battery and would affect its efficiency. * * * There was amongst the younger artillery officers a demand for the rifle gun as the latest improvement and it was urged by the Ordnance, but General McClellan wisely took the opinion of the older officers and directed that half the batteries should be light 12 pdrs. This gun held its

own to the end of the war and at the request of General Buford, several of these batteries were equipped as horse artillery, because of their superiority at close range. With six horses to the piece they answered the purpose."

The Confederate batteries in the action of July 21, 1861, were made up of varying calibres—the 6 pdr. bronze S. B.—the 6 pdr. rifle-bronze—the 12 pdr. howitzers and perhaps others. The reports are not as explicit as those on the Union side. The calibres of field artillery in our system, according to the Ordnance Manual of 1861 were as follows:—the 3-inch rifle, 6 pdr. bronze, 12 pdr. bronze (model 1841), 12 pdr. bronze (model 1857, Napoleon), the 12, 24 and 32 pdr. howitzers, models 1841-44 and the 24 pdr. Coehorn mortar.

When General Grant was made lieutenant general and the reassignments made for the campaign of 1864, Brigadier General Wm. F. Barry was assigned to General Sherman as chief of artillery. General Tidball tells us that General Barry "with characteristic energy soon brought about many improvements, chief among which may be mentioned the simplification of the calibres of pieces, which, up to this time, had been greatly mixed in the batteries of the western armies, thereby causing great difficulty and confusion in the supply of ammunition and stores. From twelve, the number of calibres was reduced to four. The proportion of guns was likewise reduced from three to two per 1000 men. The surplus guns were sent to the rear to serve as guns of position at the various fortified places, necessary to maintain so long a line of communication through a hostile country." General Tidball tells us further that "At the outbreak of secession in the winter of 1860-61 rifled guns had not been introduced into our service, but about this time Parrott began manufacturing in large numbers rifled guns of his model and the army was speedily supplied with them. These were soon followed by the Ordnance 3-inch gun, which eventually became the favorite. In the meantime great confusion as to kind and calibre existed. The arsenals of the North were ransacked and every piece of whatever character was placed in the hands of the troops then taking the field. This variety in guns caused great confusion and vexation in the supply of ammunition and material of all kinds. Many batteries were mixed as to their armament, having two or three kinds of pieces. By the end of the first year of the war, however, nearly all of the batteries of the Army of the Potomac were supplied

either with rifles of uniform model or with 12 pdr. Napoleon guns. In the armies of the west, this reform was not so rapid and it was not until near the close of the war that anything like approximation to uniformity was effected."

What influence then has the teaching of artillery history had on our military policy? We have three separate calibres of guns, the 3-inch mountain gun, weighing 218 lbs., the 3.2-inch light field gun, weighing 829 lbs.; the 3.6-inch field gun, 1181 lbs., and the 3.6-inch field mortar of 244 lbs. Here are two pieces now adopted, both presumably satisfactory as to efficiency for their work, having one calibre, the light battery 3.6-inch field gun and the field mortar, both perhaps using the same shrapnel and shell—practically reducing the question of ammunition supply to one of easy solution. But it may be of interest to ask what would be the effect on field artillery efficiency should an unexpected war come upon us within one year? Assuming that the first force called into service would be the regular army of 25,000 of all arms and a force of volunteers equivalent to the organized National Guard of 112,496 officers and men, all organized into army corps, we should be called on to equip corps and divisional artillery for five army corps, requiring six hundred and ninety-five field guns and carriages, nine hundred caissons and a force of suitable ammunition supply wagons. The Ordnance Department is putting out twenty-five 3.2-inch field guns a year with carriages, caissons and limbers. There are now on hand, in use and in store, one hundred and fifty 3.2-inch field guns with limbers, carriages and caissons—just about enough for one army corps. The construction of the heavy field 3.6-inch gun progresses as rapidly as the state of the appropriations for it permits. It appears from the Report of the Chief of Ordnance for 1892 that at that time twenty-four were in process of completion and are now presumably ready for service. In the same report sixteen 3.6-inch field mortars are reported ready for use. The limitations of the use of field mortar batteries are such that these can never be substituted for guns.

It would be necessary then for the War Department to use what serviceable field artillery might be found available in equipping its one hundred regular and volunteer light batteries. This would embrace the old 3-inch and 12 pdr. material on hand or such modern artillery as the gun-making firms in America and Europe may have on hand at the time. The Hotchkiss Company

might be able to sell the Ordnance Department a few batteries of its 13 pdr. field and perhaps one or more batteries of its 10 pdr. or one of its 9 pdr. or 6 pdr. R. F. guns: the Driggs-Schroeder Company might induce the Department to buy a few batteries of its 6 pdr., 9 pdr., 12 pdr. or 3.2-inch guns; perhaps the Schneider Company may furnish one or more of its 75 mm. (2 $\frac{1}{4}$ -inch) field batteries: the Maxim-Nordenfelt Company might for a consideration be induced to furnish a battery or so of its R. F. automatic guns, and last but by no means least, the Krupp Works, from their well-stored arsenal at Essen, would offer us a few of their field batteries. The question of projectiles also enters into this consideration of possibilities. Referring again to the Report of the Chief of Ordnance for 1892 we find that provision had been made for the manufacture of 5500 shrapnels for the 3.2-inch gun. As the allowance for the six-gun 3.2-inch battery is 816 rounds for the chests alone, one hundred and four batteries would require 84,864 projectiles for their chests, not considering the requirements for the ammunition train.

It is not claimed that our artillery would, in the beginning of the first campaign, be harassed by so many mixed calibres as are here named, with their varying natures of explosives and projectiles, but it is claimed that under conditions which exist now and which will exist apparently for some years, we are not now and will not be prepared to begin a campaign with a field army, with our light battery service in that state of efficiency which is the result of uniformity in calibre, ammunition and supply.

Fire efficiency is somewhat dependent on that uniformity and on the assembling in battalions of batteries which have it. It is not absolutely clear to experienced officers that General Hunt, the most capable artillery officer developed by our Civil War, was wrong in claiming the advantages of a single calibre. The mistakes of doctors are buried six feet under ground. Those of lawyers are suspended six feet above the ground, those of naval officers are in the deep bosom of the ocean buried, but those of artillery experts will be in plain sight on the field of battle. It appears to be highly probable that the chief of artillery of the army in the coming war will have about the same task that fell to General Hunt after the first battle of Bull Run—he will find the duty imposed on him of creating the system of field artillery for that particular war. Perhaps it may be conceded, looking at this and at other military questions, that it is high time the

United States should have a rational military policy, independent of individual interests and personal considerations, if such can be formulated in a political system like ours. Perhaps when Altruria is discovered, we may have hopes of such a military policy in that favored land, if political environment should make armies a necessary evil.

BOOK-KEEPING FOR POST EXCHANGES.

BY LIEUT. EDWARD ANDERSON, 1ST U. S. CAVALRY.

THE Post Exchange is to-day one of the permanent institutions of the army. Notwithstanding the vigorous onslaughts and fire of criticism heaped upon it by its opponents during the years of its infancy, it has steadily grown in favor with the army and progressed ; it is popular, and in my opinion, deservedly so, with both officers and men when well conducted, so much so that it stands out bold and unique in its usefulness as the measure generally approved by the army as most beneficial out of the numerous changes inaugurated during the past few years. I think the army, as a whole, is satisfied with the change from the post trader to the Exchange, and that this is due solely to the merits of the latter. Having been established only a few years, it should not be supposed that the system has reached perfection. Beginning as the Exchanges have, with hardly any capital, no financial standing, and generally with men inexperienced in commercial affairs at their head, the difficulties overcome would have been very great but for the monopoly granted them, previously enjoyed by the post trader. Every year changes for the better, based upon experience peculiar to this system, are being made, and the War Department is endeavoring by stimulating discussion on the details of management, to arrive at the best means for the proper control of these institutions. I believe in the Exchange system, but if I did not, I should still consider it a duty as Exchange officer, to endeavor in every legitimate and proper way to make it productive of the most beneficial results and to accommodate as far as practicable the desires and wants of those depending upon it. I beg to submit two primary, essential and indispensable points for consideration, upon which the success of the Exchange must depend : (1) Careful and intelligent management. (2) Strict honesty of all connected therewith. In order to insure intelligent management the Exchange officer must have facts before him showing conclusively the exact state of all affairs connected with the Exchange, so that he can tell, at any time, how every department is progressing, and thus be enabled to

regulate properly the details in any one branch. To secure honest dealings in all its transactions, there must be kept a record of all minutiae, and proper checks placed on same, so that in case of irregularity the cause can be promptly and accurately determined and the responsible party called to account. As to the best means of accomplishing these results, I shall now consider the subject of book-keeping for Post Exchanges. Book-keeping is a science as exacting in its fundamental principles as calculus; a science based upon one great equation, in which the number of constants and variables are unlimited, and the mastery of which consists in knowing how to apply the constants and variables of this equation to any business, to keep the equation always balanced, and from it to deduce results which are as clear and positive in their nature as the principles of mechanics deduced from the fundamental equation of energy. In the management of a business, the proper keeping of all its records, in a systematic manner, is as essential and important as the rudder to the ship. Of course, in a small business where only a few accounts are kept and little responsibility involved, this is not so essential, but when the funds of other individuals or organizations are concerned, and business conducted on a larger scale, this is imperative to the utmost degree.

Par. 337 A. R. (See p. 6 Ex. Reg.) regarding the records to be kept by Exchanges was made when the Exchange system was first adopted, when the stock of merchandise was so small that an inventory could be taken in a few minutes, and the accounts were few and of a most primitive nature. With its growth from year to year in capital, patronage, and greater accommodations, these conditions have materially changed, and the Exchange now occupies a position no less important than the post trader of a few years ago; and with these changes this primitive system of the keeping of its records must also be changed to meet the greater requirements. It is important and essential that there shall be kept a systematic record of all its business transactions so that its financial status may be determined at any time, and correct information ascertained without doubt as to whether or not its business is being properly conducted and upon a sound basis. The double entry system, in which there always appear two ledger accounts for every transaction, on account of the accuracy with which accounts can be determined and verified, is generally conceded to be the only system that may always be relied

upon to give correct conclusions and is the one that should be followed. It is now proposed to show the number and kind of books necessary to be kept, the various accounts to be considered, and the different minor records used in the current business of the Exchange; illustrating by those now in use at the Exchange at this post. I shall briefly explain each in detail, showing how they are kept, the purpose and use made of each.

1. The cash sales book; one each of which is kept at the merchandise counter, billiard room, lunch counter and bar. In this book is made an entry, by the salesman in charge, of every article sold, price, quantity and amount paid; for billiards, it shows the names of all men playing, whether billiards or pool, number of games played and amount paid by each. When credit checks are issued two columns may be used, one showing cash and the other checks received.

2. Besides cash sales, there is allowed to officers and others, designated by the Exchange officer, credit sales, which are charged to their individual accounts and paid at the end of each month. Instead of keeping a credit sales book for this purpose, printed slips are used, being furnished to the parties allowed to purchase on credit, so that the articles desired can be written down, signed for by the officer, the items entered in the petty ledger, and the slips filed as a voucher to the account rendered at the end of the month.

3. From the records of the cash and credit sales, the record of daily sales for each day is compiled by the steward, showing all articles sold, price, quantity, amount received, cash, credit checks, credit sales, surplus of cash which may have accumulated from change, bills receivable, and specifying the amounts received from each department, viz. ; merchandise, beer, lunch counter, tobacco and billiards. It is stamped by the Exchange officer with receipt of cash received; by the steward showing when entered in stock book, and by the bookkeeper showing page of journal upon which the several entries are made.

4. The invoice book contains all invoices filed in order of the dates of payment. When an invoice is received it should be placed on a desk file until the goods arrive, when the different items are checked off—when discounts are allowed for cash they should be paid at once without waiting for the articles to arrive. Each invoice is stamped showing date of receipt, payment, when entered in stock book, and page of journal entry, and then carefully filed

in the invoice book for future reference. When an invoice is received for goods ordered for private parties, the name of party is written on invoice, showing to whom same has been charged.

5. The stock book. In this a record is kept of all merchandise received, the amount sold, and balance remaining on hand at any time. It is compiled each day from cash and credit sales and from invoices received, by adding to balance on hand from preceding day, all merchandise received as per invoices, and deducting therefrom the sales for the day. This book shows the stock on hand at any time and is used for inventory, which, when taken, should be written in red ink. The use of this book also places a complete check upon every article carried in stock, as it is taken up when received and can only be dropped when paid for. Opposite each article carried in stock is marked in red ink both the cost and selling price; thus, at the end of each month, by multiplying the quantity of each article on hand by the cost price and adding the totals, the value of the stock on hand is easily determined. This should also be entered in red ink on stock book for future reference. At the close of business each month a computation should be made and entered for reference, of any shortages as shown by stock book and amount of same balanced with excess in cash turned over to Exchange officer during month—any discrepancy should be in favor of the excess of cash. The stock book submitted for use by the War Department required the heading of every article to be written in each day—the present book used, I had prepared in Chicago and requires the headings to be entered only once each month, and besides has the advantages above mentioned, not derived from the old style of book. Placing as it does an accurate check upon all articles carried in stock, it is a most invaluable book in the proper administration of the affairs of the Exchange.

6. Letters sent book, which contains a copy of all orders given, letters, correspondence, statements rendered and reports submitted, the kind used being the ordinary copy book used with copying press. Two of these should be kept; one pertaining to the transfer of funds to banks, forwarding accounts to paymasters and financial statements rendered monthly to depositors, and one for all other business of the Exchange. A great deal of confusion will be avoided by taking a copy of every communication leaving the Exchange so that it can be promptly looked up for reference at any time.

7. The bank check book, in which is kept an account of the dealing with banks on its stubs, by adding deposits and deducting withdrawals. The stub of each check drawn should show the date, to whom payable, for what paid, the amount, and in case of same being issued for a private purpose, the stub should show this fact and by whom purchased. There are two recognized systems of keeping record of cash in bank; one, by record on stubs, as above explained, in which all funds held on deposit by banks are regarded and carried on the books as cash; another by keeping a ledger account with bank and carrying as cash only the funds actually on hand in office safe. The first is well adapted to the Exchange business and is more convenient than the second, in that it does not require any entry in the Exchange books of the large number of checks issued to private parties and not affecting the business of the Exchange. If the latter plan were followed an entry would have to be made of each check so issued in the journal, cash book and ledger. The use of this check book has an important place in the Exchange business. (1) Money can be sent without charge to any place in the United States. (2) The least risk in sending money. (3) When properly endorsed the checks are paid by the bank and after being returned are filed as receipts. (4) Issuing checks as an accommodation for parties having money on deposit.

8. The journal is made up from the daily sales slip, invoice book, stubs of bank check book, and also every other transaction of the Exchange is entered in it. It is descriptive in its nature and prepares all accounts for the ledger; as it is the book which describes in detail every transaction, and specifies every party entering into said transaction, too much care cannot be given to its proper posting. The debtor takes precedence over the creditor, either one or both of which may be a single entry or any number of entries, but the two sides must always balance.

9. The cash book shows all cash received and paid out and specifies the parties entering into every cash transaction. It is nothing more nor less than a ledger account of the cash, but for convenience is kept in a separate book. In order to facilitate rendering the semi-annual report called for by the War Department, it is better to have both the debtor and creditor sides ruled into seven columns, showing in detail the respective amounts received and paid out for deposit, beer, billiards, lunch counter, merchandise, tobacco, and the last column for the total of all the

others, so that the footing of the last column will be equal to the sum of the footings of all the others and also serve as a check upon the additions. By striking a balance between the columns of totals on the debtor and creditor side, the cash on hand at any time is promptly determined. This style of cash book can be procured only by special order in manufacture.

10. The ledger is the most important book kept, as all the others serve as tributaries to it. It is posted from the journal, takes the miscellaneous collection of transactions, separates them and places each item in its proper account, thus rendering a complete classification of all its transactions. In it is kept an account with every person from whom goods are bought or sold, and which requires, by its nature, separate particulars to be given. It is the record from which all facts pertaining to the business are deduced, and is the basis of all correct conclusions regarding the prosperity and worth of the enterprise. From it the statement of assets and liabilities is compiled, and the status of every account connected with the Exchange is determined. In order to facilitate the management, each department in the Exchange should have its own ledger account. I will briefly explain the different accounts which should appear in the ledger of the Exchange; these, of course, may be reduced or expanded, the idea being to obtain the desired results with the least number of accounts:

a. Capital stock, which is contributed by the different organizations at the post at the rate of $8\frac{1}{3}$ dollars per man for the maximum strength allowed each, amounts to \$500 for each troop, \$183.33 for the band, and \$83.33 for the hospital corps; total \$2766.66. At the end of each month the profits accruing are transferred to capital stock until the end of each quarter, when all profits are returned as dividends to contributing organizations pro rata as per capital stock invested by each.

b. Bills receivable, which contain all written promises to pay given instead of cash. The only kind handled by the Exchange are the notes given by the men payable next pay day. In this account there is no necessity, as is usually done by business houses, of taking into account the names of the parties drawing these notes, the amount alone is carried to the ledger and the notes themselves are held and converted into cash on pay day. In making out the monthly statement it is usual to include in this account, for brevity, all amounts due on unpaid accounts; in a more detailed statement it would appear under a separate heading.

c. Bills payable, or credit checks, are promises to pay given by the Exchange for value received. Credit checks are the only promises of this nature given by the Exchange, and consequently this ledger account is appropriately headed credit checks; these are the small bits of cardboard issued to the men in exchange for bills receivable. Bills receivable are an asset, while credit checks outstanding are a liability.

d. Fixtures includes all billiard and pool tables, show cases, lamps, desks, equipment for lunch and beer counters, office fixtures, books, iron safe, etc., and their value should be reduced as rapidly as practicable on the books, until it reaches a value which they would ordinarily bring in present market. The fixtures in Exchange at this post cost something over \$1200 and have been steadily reduced in value until now they are carried as worth \$500, which it is believed they would bring at any time if necessary to sell.

e. There should be a ledger account, one for each, with merchandise, beer, billiards, tobacco and lunch counter; these might all be classed under the head of merchandise, but by having a separate account for each the progress, profit or loss, and details of each can be accurately determined and regulated. In order to do this with entire accuracy the expense account, which includes salaries to attendants, oil, etc., and the discount account, nearly always kept by business houses, do not appear on the ledger, but each item of expense or discount must be debited or credited directly to the account to which it pertains, thus making the account of each department in the Exchange entirely independent from every other.

f. Loss and gain account, to which are carried the losses and gains from all departments, when balanced, shows the net gain or loss of the business.

The different accounts above enumerated are those necessary to be kept; besides these, there must be an account kept with every person in which the transactions with them require separate particulars to be given.

If the ledger is kept properly posted an approximate idea of the business can be ascertained at any time. To obtain correct results the ledger must be closed, and in order to do this an inventory must be taken of the stock remaining on hand in every department. The amount remaining on hand cannot be determined from the ledger, since we debit all merchandise at the price

we pay and credit it with the price at which we sell. This inventory is readily determined from the stock book previously described.

There are two methods of testing the accuracy of ledger accounts. 1. By taking off a trial balance from the face of the ledger by means of the totals of the various accounts, debits and credits. 2. By trial balance sheet prepared from the balances as shown by all ledger accounts. One of these checks should be applied twice each month to test the accuracy of the accounts.

11. The last book to be described, the balance statement book, is compiled from the ledger, and shows the results of each month's work as deduced from the ledger. It exhibits in detail the trial balance sheet, the amounts we owe and those owing to us, a statement of all assets and liabilities, loss or gain accruing from each account, present worth, net profit, cash received and expended and balance remaining; and when a distribution of profits is made, it also shows the amount allotted to each organization, thus presenting at a glance a summary of all the transactions and business of the Exchange in compact and convenient form for reference.

I have endeavored in this essay to give only a brief synopsis and description of the books used and method of keeping Exchange records. Almost any officer is liable for duty as Exchange officer, and being suddenly placed in a position in which the finances transacted through his office amount to anywhere between five and ten thousand dollars per month, there is imperative necessity for an accurate system of records. When the financial affairs of an officer entrusted with public funds become muddled, whether through his fault, neglect, or ignorance, or that of others, his reputation is placed at stake and his commission in peril even though he may be thoroughly honest and his intentions of the best. The honor and integrity of the army is nowhere more fully exemplified than in its dealings with financial transactions and the high standard in this respect required of its officers.

THE NON-EXISTENCE OF "MARTIAL LAW PROPER."

BY FIRST LIEUT. HARVEY C. CARBAUGH, 5TH U. S. ARTILLERY.

SINCE the decision of the U. S. Supreme Court in *ex parte* Milligan on December 17, 1866, many writers have used for the subjects of military and martial law the classification made by the dissenting minority in that case, namely; "military law, military government and martial law proper." Apparently following this classification, martial law, by the writers referred to, is separated into military government, *i. e.*, military jurisdiction "exercised in time of foreign war without the boundary of the United States, or in time of rebellion and civil war within states and districts occupied by rebels treated as belligerents," and "martial law proper," *i. e.*, military jurisdiction "exercised by the United States (or a state) over its own citizens (not being enemies) in an emergency justifying it." The word "jurisdiction" in both instances means governmental authority and not simply authority of a court over parties and subject matter.

It is believed, however, that the use made of the minority's classification, in itself erroneous, is not justified nor intended by its dissenting view in *ex parte* Milligan.

The case referred to presents the following facts and points of law: Milligan was a citizen of the United States and of the State of Indiana, where he resided. He had not been since the commencement of the Rebellion a resident of any of the states or territories designated by executive proclamation or otherwise as being in rebellion. He was not and never had been in the military service of the United States. The State of Indiana was in the territory of the military district of Indiana, one of the military districts within the territory of the Department of Ohio. The loyal territory of the United States had been divided for convenience into territorial Military Departments under military commanders, and within these departments the organized armies of the United States operated, in general without regard to such commanders. Milligan and others were arrested by a military force and tried by a military commission, appointed by the military commander of the district in which Indiana was included.

Milligan was found guilty—(1) of “conspiracy against the Government of the United States; (2) of affording aid and comfort to rebels against the authority of the United States; (3) of inciting insurrection; (4) of disloyal practices; (5) and of violating, while pretending to be a peaceable, loyal citizen of the United States, his allegiance; of attempting, as a citizen of said government, to introduce said enemies of the United States into loyal states of the United States, thereby to overthrow and destroy the authority of the United States; and of organizing and extending a certain unlawful society, order, etc., with the same objects.” “All this on or about the 16th day of May, 1864, at or near the city of Indianapolis, Indiana, a state within the military lines of the Army of the United States, and the theatre of military operations, which had been and was constantly threatened to be invaded by the enemy.”

The acts set forth in the 5th sub-division of offenses were charged as violations of the law of war.

Milligan was sentenced to be hanged and the case came by appeal to the Supreme Court of the United States.

There was in existence at the dates on which all these events happened, the Act of March 3, 1863, which authorized the President of the United States, whenever in his judgment the public safety might require, to suspend the privilege of the writ of *habeas corpus*, in any case throughout the United States or any part thereof, and directed that all cases of “Citizens of States in which the administration of the laws has continued unimpaired in the Federal Courts, who are now or who may be hereafter held as prisoners of the United States by order of the President of the United States, or either of said Secretaries (War or State) in any fort or arsenal or other place as State or political prisoners, or otherwise than prisoners of war, should be investigated by the grand jury having jurisdiction in the premises, with a view to release in case the session of the grand jury terminated without finding an indictment or presentment or other proceedings against any such person.”

The prayer of Milligan was, that he might be brought before the court under the act cited, and either turned over to the proper civil tribunal to be proceeded against according to the law of the land, or discharged from custody altogether.

Preliminary objections of a technical nature as to discharge having been disposed of, the majority of the court expressed

itself as being "fully sensible of the magnitude of the inquiry and the necessity of full and cautious deliberation." The full court decided unanimously that under the statute, Milligan should be discharged ; in view of the statute, because *he was not a prisoner of war.*

The members, however, did not agree on all the questions raised ; five members, constituting the majority of the court, stated that aside from the statute, the controlling question was, "Had the military commission the legal authority to try and punish this man ?" They answered by saying : "Every trial involves the exercise of judicial power, and from what source did the military commission that tried him derive their authority ? Certainly no part of the judicial part of the country was conferred on them, because the Constitution expressly vested it in one Supreme Court and such inferior courts as the Congress may from time to time ordain and establish, and it is not pretended that the commission was a court ordained and established by Congress. They cannot justify on the mandate of the President, because he is controlled by law, and he has his appropriate sphere of duty, which is to execute, not to make the laws, and there is no unwritten criminal code to which resort can be had as a source of jurisdiction." The majority further said : "The laws and usages of war are not applicable to the facts, and could not be so made by Congress." This conclusion was based on the following grounds : 1st. The Supreme Court had judicial knowledge that in Indiana the federal authority was always unopposed and that the federal courts were free to hear criminal accusations and to redress grievances.

The soundness of this conclusion has been attacked, especially in certain remarks on page 461, Whiting's War Powers, 43d edition. It should be noticed, however, that those remarks do not attack the essential fact as stated by the court, that the federal courts were always open. The attack states that there had been opposition to federal authority, and that the courts had at times been open only through military protection, and further claims that all the facts involved are political facts, of which judicial cognizance should not have been taken but should have been specifically proved. Now, as a matter of fact, the courts were open. The Supreme Court knew it and the minority stated it. It is of no import how the usual constitutional civil law was upheld. It was paramount.

The Supreme Court could and would take notice of political acts closing the courts below, such as proclamations or laws, but none such were in existence. The court might take notice of hostilities actually closing the courts below, but none such were in existence. To say that the Supreme Court could not take judicial notice of the existence of the courts below would be to hold that in all cases and at all trials there must be special proof that the civil power prevails so as to keep its courts open.

The minority, however, stated that "It is established by the papers in the records that at the time of the arrest the state was a military district, was the theatre of military operations, had been actually invaded and was constantly threatened with invasion," but the minority also decided that Milligan was not a prisoner of war and admitted that the civil courts were open and that the military status described was not essential to the right the minority was contending for. The court below did not certify to the existence of the military *status* of the district thus claimed to have been established. This claim is founded only on the finding of the military commission in its own record, which finding would not be conclusive though it would be entitled to great weight as an opinion. The court, *i. e.*, the majority, said, "every one connected with the military and naval service had surrendered his right to be tried by the civil courts, but all other persons, citizens of states where courts are open, if charged with crime are guaranteed the inestimable privilege of trial by jury. Hence, under the facts, Milligan should have been tried by the civil courts but the right of trial by jury had been denied him. Martial law can never exist where the courts are open and in the proper and unobstructed exercise of their jurisdiction."

"The necessities of the service during the late Rebellion required that the territory of the loyal states should be divided into military districts and commanders appointed in them, but this does not in a military sense constitute those districts the theatre of military operations. This is not a question of the power to proclaim martial law when war, whether of foreign invasion or internal origin, exists in a community and the courts and civil authorities are overthrown, nor a question as to what rule a military commander at the head of his army can impose on states in rebellion where war really prevails." The civil status of the district as claimed by the majority was in fact in existence. The admissions of the minority go to show it.

Milligan was not a *prisoner of war*, he was not engaged in *legal* acts of hostility against the Government, and when tried for the offense could not plead the rights of war. This doctrine is attacked in Bishop's criminal law, note to par. 64, also in Whiting's War Powers, page 463, the former holding that this was an incorrect assumption. The court meant and said that certain acts of belligerents are regarded as legal under the laws of war and that Milligan, not being one of those to whom the political department had accorded or permitted belligerent rights, was not a prisoner of war.

The remark in Whiting's War Powers says: "The question as to how Milligan was held was not properly presented by the record for adjudication," but that he was *not a prisoner of war* was the one point upon which all of the members of the court agreed and the only one upon which the minority rested to justify the order for discharge.

The proposition of the minority of the court is that there is a military jurisdiction to be exercised "when the public danger requires its exercise in times of invasion or insurrection within the limits of the United States or during rebellion within the limits of the United States maintaining adhesion to the general government and is called into action, by Congress or temporarily, when the action of Congress cannot be invited and in the case of justifying or excusing peril by the President in time of insurrection or invasion or of civil or foreign war, within districts or localities where ordinary law no longer adequately secures public safety and private rights, such jurisdiction being derived as incident to the powers to raise and support armies and to declare war, vested by the Constitution in Congress."

By "jurisdiction" the minority meant no more than power of a military court over parties and subject matter, and not governmental authority in general to suppress domestic insurrection. If Congress had the authority to direct the trial of Milligan under the circumstances, then, in the absence of the law under which he was released, it may be admitted that the President could in emergency have assumed the right so to try him, relying on Congress to support his action and that of the commission.

Ultimately the disputed authority is that of Congress to call into existence a military method of trying citizen offenders who are not subject to military law nor to the laws of war; in other

words, a military jurisdiction for trial, which the minority designated as "martial law proper."

In view of the act of 1863, the minority claimed that the fact that the federal courts were open was regarded by Congress as a sufficient reason for not exercising the power so to try such offenders by military commission, but "that fact could not deprive Congress of the right to exercise it." This in places exposed to invasion but not invaded, which in a military sense are not actually the theatre of military operations; in which war does not really prevail; in which the courts and civil authorities are not overthrown; in which legal civil government is recognized; and in which there is no rebel government existing or proclaimed as existing.

This power so to try, the minority thought might be derived from the constitutional grants to raise and support armies and to declare war. They contended that Congress could punish by military tribunals, conspirators and other offenders against the discipline and safety of the national forces and against the Government in such districts or states where Congress might determine great and imminent danger existed, but where the laws of war did not give the right of military trial. The principal reasons assigned for calling this supposed power into existence were "that those courts (the civil) might be opened and undisturbed in the execution of their functions, and yet wholly incompetent to avert threatened danger, or to punish with adequate promptness and certainty the guilty conspirators." The majority answered: "The law said arrest them, confine them closely, render them powerless to do further mischief, and try them according to the course of the common law." The minority urged "that there was danger of judges, marshals and courts being active sympathizers and efficient allies." As to this reason, it may be said that the minority was urging a possibility which could be equally urged against the military. It should be carefully observed that the statement of the proposition of the minority at first blush could refer to and include those occasions where it is necessary to use military force and governmental authority in dispersing insurgents or in controlling districts where in general the inhabitants are in insurrection against a state or against the United States, but it is evident that no such occasions were had in view by the minority and that no such object for "martial law proper" was intended as appears from the supposed origin of the power which is distinctly stated

to be an incident to the grants to raise and support armies and to declare war, and from the fact that the word insurrection occurs but twice in the minority's views, both times in summing up, and then it is used not to show domestic authority to suppress insurrections, but to show that this incidental power of trying citizen conspirators against the discipline and safety of the national forces and against the government by military tribunals, could be exercised in places remote from districts and places actually in insurrection and under martial rule as authorized by the laws of war.

The minority itself repudiates any claim as to this power being that to suppress, by governmental means, domestic insurrection by stating its contention to be that "there are cases in which the privilege of the writ of *habeas corpus* being suspended, trial and punishment by military commission of such offenders, in states where civil courts are open, may be authorized by Congress as well as arrest and detention." Here it should be noted that there is a specific constitutional grant to authorize arrest and detention while the minority were contending that the greater power to try originated by implication. The majority of the court, as before quoted, state that it was this alleged incidental power to try by military tribunals, and this alone, which it refuted. Hence the classification of military jurisdiction for trial—martial law proper—made by the minority was not intended and is inapplicable for use in respect to the enforcement of the civil authority by the use of military force over residents of loyal territory or for a basis for substituting martial for civil rule over such territory or its inhabitants.

The argument of the minority and its term "martial law proper" extends only to punish treason or treasonable offenses by military commissions whenever committed within the territorial limits of the United States, when the country is engaged in warfare of any kind, providing Congress, or temporarily the President (in the absence of directions to the contrary from Congress), believed that exigency demanded it, regardless of the fact that such commissions would not derive their jurisdiction from the laws or usages of war or from the fact of the local civil authority being overthrown.

This sovereign power would clothe Congress with the right "to determine the question of expediency" of substituting military tribunals for civil courts. Its existence is denied by the

following views: 1st. The opinion of the majority in the Supreme Court in *ex-parte* Milligan and by an opinion of the same court in *Raymond vs. Thomas* (91 U. S. 712), a later case. "It is an unbending rule of law that the exercise of military power where the rights of citizens are concerned shall never be pushed beyond what the exigency requires." An anticipated exigency gives no authority, and the requirements of an existing one is fully met by the right to arrest and detain at will through use of the constitutional grant as to the suspension of the privilege of the writ of *habeas corpus*. 2d. Whenever and wherever a state of peace is recognized as existing by the political department of the Government, the laws of peace prevail and the rights secured to citizens in time of peace must be respected and maintained, but wherever and whenever in the United States a state of war is so recognized, there and then the rights and liabilities of war attach (Whiting's War Powers). A state of peace is recognized as existing in the absence of facts or political acts closing the courts, or proclaiming an absence of legal local government. 3d. No court has rendered a decision as to the constitutionality of that section of the Act of Congress of March 25, 1867, Ch. 155, assuming to indemnify officers, so far as it relates to military trials by courts-martial or military commissions, over and thereby inflicted on civilians in districts remote from active military operations and a territory not in nor declared to be in insurrection, but all decisions point to the unconstitutionality of that part of the act, as an attempt to render legal that which was illegal from the beginning.

The court in *ex-parte* Milligan forcibly expressed itself that the use of the constitutional grant as to the writ of *habeas corpus* was the extent to which Congress or the President could legally go, and gave excellent reasons why this power filled the requirements of necessity.

An attempt was made in *Bean vs. Beckwith*, 18, Wall, 510, 516, in 1874, to get the Supreme Court to pass on the constitutionality of the acts of 1863 and 1867, but only as to indemnifying for arrests and imprisonments. The court, however, remanded the case on account of defective pleadings. It was again argued in 1879 (see 8, Atto. 266, 308) and the court ordered a new trial on special grounds, but the majority took occasion to say "we express no opinion as to the constitutionality of these laws because the counsel of the defendant did not discuss the grave questions

of statutory and constitutional law which perhaps the several exceptions to the charge were designed to present for our decision." Justices Field and Clifford remarked while discussing the authority of Congress to indemnify for arrests and imprisonments of the nature presented by the case: "The jurisdiction of military tribunals does not extend to persons not in the military service who are citizens of states where the civil courts are open, though a civilian cannot on the actual theatre of military operations interfere with or obstruct any of the measures deemed essential to the success of the army without subjecting himself to immediate arrest and summary punishment. The ordinary laws of the land are then suspended by the laws of war." 4th. "The expression martial law may be passed over as merely cumulative; it means nothing but the absence of law," save the law of war. *McCall vs. McDowell*, 1, Abb., U. S. Rep. 212. 5th. The definition of martial law in General Orders No. 100, A. G. O., 1861, excludes the authority claimed by the minority of the court. It is there defined as being simply military authority exercised in accordance with the laws and usages of war. It is further restricted therein "to the enemy's country and to territories and places in the commander's own country when face to face with the enemy." It is claimed against this definition and these restrictions that the distinguished author of that order left unpublished manuscript which show that he believed the power claimed by the minority for Congress existed. To believe that he had that view is to overturn his definition of martial law, and to give to his unpublished manuscript greater weight than to his deliberate judgment expressed in the order. But the view of the minority of the court is nowhere substantiated in the unpublished writings referred to. One has only to keep in view the definition and restrictions as to martial law in order to realize that that eminent writer in his unpublished manuscript was only touching on the delicate questions which might and would arise as to when martial law as defined in the order was the rule. He added no such confusion or assertion that a new kind of martial law for trial of citizen offenders had been incidentally created and born under the powers of Congress granted by the Constitution of the United States to raise and to support armies and to declare war.

When under title 59, of the R. S., the insurgents are directed by the President to disperse and fail to do so, the President has the right therein granted him to further declare or recognize (and

is the judge of when to do so) the existence of insurrection and the absence of local civil authority, whereupon the laws of war attach. If Congress or the President by its authority, through political acts, declares nothing but the laws of war, the laws of necessity are left to govern. Then arises the question as to whether Congress has itself created a revolution or has recognized the existence of insurrection and rebellion which is fast completing one. If the latter, there is no dispute as to its authority, its duty, or even that of the President to do likewise. If the former, each good citizen must decide for himself. As to the necessity for martial law in districts which are not in a state of insurrection and which are not the theatre of active military operations, at most the suspension of the privilege of the writ of *habeas corpus* without trial by military tribunals and without punishment by military methods is all the Constitution has provided. The statement of the existence of necessity to try by military methods citizens in such districts, is one to disregard the civil authority under which, in accordance with existing statutes of the United States, there is a legitimate use for military force to meet force in suppressing insurrection, in dispersing insurgents, in dispersing mobs, in preventing violations of neutrality law, in protecting Government property, etc. One has only to read the statutes to know all the occasions to use military force in upholding local civil authority, etc.

The existence of martial rule in any place brings with it the right to try and punish by military methods in all cases, offenders who are citizens though they are not subject to the discipline of military law.

There is no "martial law proper" or "martial law as a domestic fact" derived as an incidental power from the Constitution to give this right. The right so to try is based on the circumstances of, and authority to suppress, insurrection. The right to suppress domestic insurrection does not spring from any alleged right to try by military tribunals as an incident to supporting armies and declaring war. The classification of "martial law proper," made in view of the supposed necessity which falls short of absence of legal, local civil authority and which nevertheless authorizes trial by military methods, citizens not otherwise subject to military law or the laws of war, is a doctrine which none more "pernicious has been invented by the wit of man." Under the impression, evidently, that the "martial law proper,"

as defined by the minority, was intended to define the origin and cover the use of military force in domestic affairs, writers have expressed themselves and asserted that the dissenting views express the true view of martial law in this country; that for more exact purposes the distinction made by the Chief Justice is preferred; that the Chief Justice demonstrated upon recognized principles of municipal and international law the true nature and limits of military jurisdiction in this country; that the minority view was made after the experiences of the Civil War had directed attention to and thrown a flood of light on the subject; that the decision of the court was made by a bare majority of the court at a time of great political excitement; and that the Chief Justice has left nothing to those who follow him except to fill in the details of the plan. In their attempts to follow him and fill in the details, there is much confusion.

These writers have at other times and places alternately admitted and argued that "martial law proper" in free governments like the United States is most difficult of definition; that Congress seems to have adopted the minority view in the reconstruction act of March 2, 1867; that martial law proper is a domestic fact instituted within districts which in contemplation of law are friendly; that the point of dispute in *ex-parte* Milligan was whether or not martial law could legally be enforced in districts far removed from the trend of contending armies or the operations immediately attendant thereon; that proclamations issued by the President under existing federal statutes to insurgents to disperse are proclamations of martial law proper; that the suspension of the writ of *habeas corpus* is essentially an exercise of martial law (probably meaning suspension of the privileges of such writ); that the term is properly applied to the use of the military under the reconstruction act of 1867; that the term is not properly applied to the use of the military under the reconstruction acts; that under martial law proper there have been occasions where the military acted with the local civil power without strife for precedence; that these were occasions of martial law to the fullest extent without formal proclamation; that martial law is properly inaugurated by proclamation of the President or by declaration of military commanders representing him; that the exercise of martial law is a legislative right only; and that the exercise of martial law is a matter of executive authority only. The filling in of the details of the so-called plan of the

Chief Justice seems even more difficult, if to these assertions, admissions of inexactness and contradictory arguments be added : 1st. The military jurisdiction explained by Chief Justice Chase in his remarks at Raleigh, N. C., June 6, 1867, as follows :—" It is true that military authority is still exercised within those southern circuits, but not now as formerly in consequence of the disappearance of local authority and suspension or control of all tribunals, whether State or national. It is now used under acts of Congress, and only to prevent illegal violence to personal property, and to facilitate the restoration of every State to equal rights and benefits in the Union." 2d. The use of the military within loyal territory under the revised statutes of the U. S. to preserve the neutrality law, to keep the peace at the polls, to protect government property, to eject intruders from the Indian country, etc. It may however be remarked in conclusion that undoubtedly the laws of the U. S. are defective in failing to prescribe any sufficient penalty for the offense when death results from the acts made penal in Section 5334. The offense is certainly murder and properly cognizable only by a federal court, otherwise we continue as now, unable to punish individuals who, acting in defiance of the authority of the U. S., fire on her troops or wreck trains upon which they are ordered, thereby causing death ; unless indeed we are satisfied to call in the friendly aid of State laws to adequately punish such an offense. It should be made clearly a federal offense for a federal court to punish.

THE MILITARY SERVICE OF INDIANS.

BY MAJOR E. P. EWERS, 9TH U. S. INFANTRY.

MANY years of my army service have been spent on duty with Indians, at times as acting Indian agent, commanding them as captives or as prisoners of war, using them as enlisted scouts and guides even when our safety actually depended upon their loyalty. To me, therefore, this subject is one of interest, my one regret being that I do not feel competent to do it justice—a literary rôle being one most foreign to me—but I shall endeavor to record a few facts which may help to prove that all Indians are not bad ones, nor “the only good Indian a dead one.”

In the past the Indians have done excellent military service. They are brave and fearless, and have been loyal and true while we have kept faith with them. In my opinion no better material can be found as an auxiliary to the army in dealing with the Indian tribes than the enlisted Indian scout or soldier.

The War and Indian Departments, generals of the army and many officers, as well as prominent men in civil life, have approved and recommended the employment of Indians in the military service. The Secretary of War in his report for 1891 on the enlistment of Indians says: “Incidentally, it was hoped that the habits of obedience, cleanliness and punctuality, as well as of steady labor in the performance of both military and industrial work inculcated by service in the army, would have a good effect on those who might enlist, and also furnish an object lesson of some value and exert a healthy influence upon others of their tribe. The results have been satisfactory; and when it is considered that a short time ago many of these Indian soldiers were ‘blanket Indians,’ that few of them ever had on a suit of clothes, slept under a roof, ate at a table, used a knife and fork, wore shoes, or had their hair cut, the transformation is indeed remarkable. * * * It is not only an important step towards their civilization and self-control but is the cheapest and best insurance against further Indian troubles.”

The Major General commanding the army in his report for 1892 says: “The results thus far obtained by the enlistment of a

few Indian troops and companies into the regular regiments are entirely satisfactory. The young Indians become obedient, subordinate, and contented soldiers, instead of a restless and dangerous element among their tribes."

General Miles has said: "In council the Indians have produced men of character and intellect, and orators and diplomats of decided ability, while in war they have displayed courage and sagacity of a high order."

Bishop Whipple of Minnesota—so widely known through his successful work among the Indians—writes: "The North American Indian is the noblest type of a heathen man on earth. He recognizes a Great Spirit; he believes in immortality; he has a quick intellect; he is a clear thinker; he is brave and fearless, and, until betrayed, he is true to his plighted faith; he has a passionate love for his children, and counts it joy to die for his people. Our most terrible wars have been with the noblest types of the Indians, and with men who had been the white man's friend. Nicolet said the Sioux were the finest type of wild men he had ever seen. Old traders say that it used to be the boast of the Sioux that they had never taken the life of a white man. Lewis and Clark, Governor Stevens, and Colonel Steptoe bear testimony to the devoted friendship of the Nez Percés for the white man—General Harney, Colonels Boone and Bent and others speak in the highest praise of the Cheyennes."

It has been said that the relations of the Indians with the whites have been generally of a hostile character, that their main delight was war, and that they have repelled all attempt at civilization. What has been the cause of this hostile feeling? Have the whites always been just and true in their dealings with the Indians? If we look back upon the history of this country, we shall find that we have usually been the aggressors. Admitting that the Indians are a wild and savage race, can they not be subdued, civilized, and in due time be made good, law-abiding citizens? The work of reform may be a difficult one, and demand the best thoughts of some of the best men in the country; it will cost time and money, but nothing to compare with the amount expended while these Indians remain in their present uncivilized state.

How can this civilization be best accomplished? We know that those Indians employed in the military service have been greatly benefitted by it, and when thus employed have great in-

fluence with their tribe. In March, 1891, orders were issued authorizing the enlistment of one company of Indians for each of the twenty-six regiments of white cavalry and infantry serving west of the Mississippi River.

Many Indians, especially those who had served as enlisted scouts, objected to being sworn in for the period of five years and to the reduction in pay and allowances which they had formerly received as scouts. Indians accustomed to being mounted also objected to being enlisted as infantry. Notwithstanding these difficulties, Indians were enlisted; their soldierly bearing, discipline and efficiency have been commended by the Secretary of War, generals of the army and officers on duty with the Indian companies. It has been asserted that the enlistment of the Indian is a failure. I contend that if the enlistment is for the sole purpose of performing military duty the assertion may be a correct one; but the enlistment of these Indians as an auxiliary force in the army, is not only beneficial to the military service, but is of assistance in civilizing and improving their condition, as well as that of members of their tribe.

The following has suggested itself to my mind, viz.: That there be enlisted from each tribe a certain percentage of the men, the companies to be known as mounted or dismounted companies of the tribe or band from which the enlistment was made. Having a family should not debar the enlistment of a desirable Indian. Companies should be stationed in the vicinity of their tribe. The officers detailed for duty with these companies should be selected from those in sympathy with the improvement of the Indian as a race, and should receive the pay and allowances of a mounted officer of the next higher grade. The enlisted Indians, taught to speak English, instructed in military duty, the cultivation of the soil, care and preservation of the crops, raising, herding and care of domestic animals, when sufficiently advanced, can be used as instructors among their tribesmen. The main object of their enlistment should be their individual and tribal improvement. From whence comes this outcry regarding the failure of the enlistment of Indians for the military service? Not from the officers who are now on duty with the Indian companies, as far as I have been able to ascertain; on the contrary, many of these officers write in high praise of their commands. Again we hear that the Indian is dissatisfied with his enlistment and purchases his discharge as soon as he can obtain sufficient funds. This

is of no significance. We find the white soldier doing the same thing, and I believe the percentage of those who purchase their discharge, or go out under the three-year act, is greater in the white companies than in those of the Indian. Why is it that these Indians are not contented in their enlistment? Do we not expect too much from them? It must be remembered that the restraint and discipline are something new to this people, who have always led a wild and roving life.

The following lines are quoted from a letter received from an officer in command of one of the Sioux companies: "I have now had about two years experience with the Indians of my company, and can say but very little about them that is not favorable. Though they lack some of the elements necessary to make good soldiers, especially a knowledge of English, they have many qualities that are most essential. They are obedient and respectful at all times to their officers, never murmur at anything required of them, never find fault, try to learn everything connected with their duties, and cause but very little trouble in matters of discipline. Situated as they are at this post, they can often see their families and relations, which conduces greatly, in my opinion, to their contentment. They perform all the duties of a soldier except guard duty and this they had performed for about a year and a half, when, on account of their imperfect knowledge of English, the commanding officer relieved them from that duty. They make up for it in performing fatigue duty, of which there has been no stint so far as they are concerned. This they accept willingly, however, realizing that they must do something to equalize matters with the white soldiers."

Mr. Herbert Welsh in a letter to a Chicago paper says: "Much has been said of late tending to convey the impression to the public that the plan of enlisting Indians in our army was virtually a failure and should be abandoned. Information which has reached me from various reliable sources, leads me to believe that this view is a mistaken one, and that the plan of enlisting Indians, if conducted with good judgment and moderation, will prove a factor, though possibly a minor one, in the general work of their civilization. Of course the effort should be properly guarded from abuse, and extravagant claims as to its probable results should be avoided, but that this plan in many instances will effect great good, I think will be admitted by thoughtful persons who are willing to consider carefully the nature of the forces which it

can bring to bear upon uncivilized Indians—order, discipline, regular habits, cleanliness, proper food, moral and religious influences, all these are exerted in some instances and some of them in all instances. The plan only requires proper care, I am convinced, in its execution to secure positive and excellent results.”

Lieutenant Byron, 2d Cavalry, writes that his three years experience with Indian soldiers has fully convinced him of the benefits derived, both to the army and the Indian, and of the good results that have been achieved by the enlistment plan, and that he is anxious to see a troop of Indians stationed at some point East where eastern people may be eye-witnesses of the good that has been accomplished. From my experience with enlisted Indians, I can testify to their loyalty and fidelity. In varied experiences with different tribes and the employment of Indians as scouts, couriers, trailers and assistants in the discharge of various duties, I never had an Indian thus employed betray the trust imposed upon him. We should not expect too much from the enlisted Indian, and must not consider that he is enlisted to benefit the service, but for the gradual improvement and civilization of the Indian. This Indian question is one of so many “pros” and “cons,” that in a brief essay one can attempt no more than crudely to touch upon a few of its many points, so let me conclude by saying, utilize the Indian.

THE PROPOSED DEEP WATER-WAY FROM THE GREAT LAKES TO THE OCEAN.

BY FIRST LIEUT. WENDELL L. SIMPSON, 9TH U. S. INFANTRY.

A PROJECT for a deep water-way to connect the Great Lakes with tide water has of late been somewhat prominently before the public. Men of capital and influence are interested, conventions have been called, a general congress with representatives from many commercial interests and several States has been in session, and that the project may at no distant day materialize seems probable.

Many years ago the Erie Canal was projected, and though purely a state undertaking, it was carried through to completion. Its importance outside the State of New York was scarcely recognized in the days of its inception, and its most enthusiastic advocates underestimated the importance of the part it was to play in commercial affairs.

As the great western interior was settled and developed, the centre of agricultural production moved westward. The productions of this vast territory have rapidly increased even in proportion to local consumption, and the question of cheaper transportation to eastern markets has become one of grave importance. Notwithstanding the almost endless net-work of railroads reaching out and gathering in the immense product to the great commercial centres for distribution, the conditions are far from satisfactory to those interested in the production. The actual expense of long-distance shipments by rail, the expense incident to the necessity of breaking bulk and making transfer in shipment to distant points, and the obstacles in the way to free competition resulting from railroad combinations, deals, and monopolies, one and all, serve to counteract the advantages of cheap land and cheap production.

During the summer of 1892, when wheat was quoted in New York from eighty to eighty-five cents per bushel, a Nebraska paper quoted prime wheat at forty cents. This is a startling difference in this day and age to be due to cost of transportation only, and the financial meaning of such a difference becomes

apparent with a brief comparison of shipping statistics. The immensity of the shipping of the Great Lakes is scarcely comprehended by those who have not made a careful study of the subject.

One-eighth of the entire commerce of the United States passes through the St. Mary's Falls Canal. The tonnage that passed through this canal in 1891 exceeded by over 2,000,000 tons the entire freight of all nations that passed through the Suez Canal during that year.

More tonnage passes the city of Detroit than any other point in the world. In 1889 there were nearly 10,000,000 tons more than the total entrances and clearances of all United States seaports, and nearly 3,000,000 tons more than the aggregate shipping of London and Liverpool; and this latter excess was increased to 10,000,000 tons the following year.

A great portion of this freight is destined for eastern markets and gains an outlet through New York or Montreal. For the former point it must be reshipped by rail or by the Erie Canal, and for the latter it passes through the St. Lawrence and Welland canals. The disadvantages of the New York route are apparent. The disadvantages of the Montreal route become apparent when one learns that boats representing one-half the tonnage of the lake traffic are of too great draught to pass through the Welland Canal, and that there are many of the boats that can pass the Welland that cannot pass the St. Lawrence canals.

With these facts before us, no good reason is apparent why a deep water-way is not already in process of construction. Our people are not slow to recognize commercial advantages, nor are they slow to act in securing them, especially when immediate financial benefits are sure to follow. With the need so urgent, the interests involved so extensive, yet at the same time no action, an opposing interest is naturally looked for; but no opposing interest is apparent unless it is that of the railroads. The project from a commercial basis, is not merely of local importance. It is not a matter of securing deep water transportation between two given points and along the connecting line only, but also and primarily, of securing the conditions to render it practicable to load several hundred miles nearer the place of production for distant points, and to load on such transport vehicles as shall reduce the actual cost of transportation, do away with the neces-

sity of breaking bulk or transferring in transit, and establish a wholesome competition to railroad traffic. Under present conditions the railroad companies own and control many of the lines of carriers on the Lakes, and with their connecting railroad lines, control to a great extent the lake shipping rates. With a through water-way from the west, open to all craft, and independent of connecting railroads, the natural laws of competition would quickly regulate the rates to a standard of "Live and let live."

The enterprise is one of immense financial magnitude; but considering the changed conditions, the wealth of the country as compared with earlier times, and the capital to be affected directly, it is no more of an undertaking than was in its day the construction of the Erie Canal.

In the accomplishment of this project its friends and advocates see a way to realize the objects set forth. With a deep water-way connecting Lake Ontario with the Hudson River, and another connecting Lake Ontario and Lake Erie, both entirely within United States territory, they see ocean ships loading at Chicago or Milwaukee or at any other lake port, not only for our eastern and southern seaports, but for any foreign port to which commercial conditions render it desirable to transport our products. Then with a widening and deepening of the Illinois Canal, they see the system and its benefits extended to the Mississippi River.

In this country commercial necessity alone can carry through such a project. When it becomes evident that business interests will warrant such an undertaking, then, and then only, will the project materialize. Will it pay in dollars and cents? is the test question to be applied to such an enterprise; and when it will, the powers act. The hills are levelled and the hollows are filled up; in fact, anything seems possible with this condition at the outset.

The United States seldom makes extensive and expensive preparations for military reasons only, until the absolute and immediate necessity exists; and then the element of time steps in as a dictator to say that this or that cannot be done. It would be useless, therefore, to urge the value of a deep water-way from a military point of view as a reason sufficient for its construction. It could in no way be a ninety-days measure. When, however, the time is ripe for the enterprise, as determined by commercial interests, the United States should foster and promote the work with an interest beyond that of the financial gain to the citizens

and the state. If, as it may appear, the time is already at hand, and the measure is being held in check by railroad interests, the Government should give due weight to the great military advantage secured, take the matter in hand, silence opposition and push the construction to completion as speedily as possible.

MILITARY IMPORTANCE.

However much civilized nations may be opposed to war in general, the nation best prepared to enforce her demands and maintain her rights will meet with the greatest courtesy and consideration from other nations, and command the greatest respect. How many war-ships and gunboats are ready to speak in this request? is a question that all take into consideration. There is no native courtesy among nations. It is all artificial, a matter of policy; but expected, required, enforced. A nation that neglects to provide and maintain the means to enforce, must cease to require, and may no longer expect. No nation can afford this neglect. It is short sighted economy.

In our country there has always been some effort to keep up a naval force and provide coast defenses. Following the sudden changes of naval construction and coast defenses incident to modern improvements in armament and increased speed in navigation, we fell fearfully behind the times in such matters; but during the last decade there has been a sufficient effort in building war-ships and improving coast defenses to show that there is still an inclination to provide the whereupon to rest a proper national dignity. With a continuation of this policy for a few years, our sea-coast will be fairly protected. Though the coast is of great extent, the important harbors are few,—twenty-seven in all,—and the naval force will be large enough to act with and support such coast defenses as may be built to protect these harbors. While this policy is being carried out, however, not a step is being taken to provide for the defense of our northern frontier. Here for three thousand miles we are practically in contact with foreign territory pertaining to a country strong in military and naval resources. Along 1300 miles of this frontier lie the Great Lakes and their connecting water-ways, which, forming an apparent natural barrier, really makes the problem of effective defense much more complicated than it could be were it all inland frontier. The conformation of the Lakes extends this 1300 miles of frontier line into 2000 miles of coast; an extent equal to our en-

tire Atlantic coast. Along the lake front are distributed towns and cities of great wealth, which are distributing and shipping centres of an immense territory, thickly settled, productive, and wealthy. These towns and the producing tracts that they represent, furnish, as has been shown, over one-half the commerce of the United States. With these facts in view, nothing further would be necessary to show the importance of this coast, or the great advantage, in the event of war with England, that the possession and control of the Lakes would be to the one power or the other. In our possession it would mean a complete protection of all this wealth and shipping, a warrant for the continuation of the great production of the northwest, a control of Canadian lake ports, and the advantages that this would give for invasion. In the possession of England it would mean either a total destruction or control of these important towns and the entire lake shipping, a safe rendezvous where forces could be collected with undisputed lines for concentration and supply, practically in the very interior of our territory.

There could be no division of this control and possession as has been in the past. The first power to place a naval force on the Lakes could hold possession to the end. The avenues of approach are contracted and easily guarded by the power in possession. They might be destroyed or made impracticable, but that would be of minor moment to the possessor. No ship building could be carried on in opposition to the controlling power, while any amount could be effected under its protection. No coast defenses of importance could be built to oppose a destroying fleet, while similar work could be undertaken by the enemy with impunity. Finally, no ready constructed land defense, without the support of war vessels, would be of avail to protect the harbors and coast towns. The coast is flat and ill-adapted to land defenses at best. If the defense be placed on the water front of a town, the destruction of the town would not thereby be prevented. The very fire drawn by the defenses would, to a great extent, take effect on the town itself. If the defenses be established on the flanks, they would still be ineffective to save the town. An attacking fleet could, in this case, after coming within range of the defenses, move to a point much nearer the town without materially lessening the distance from the defenses. Moreover, when once in possession of the Lakes, the action could be so prompt as to destroy or lay under contribution, every im-

portant town on the coast, before anything further than the preliminary steps of providing defense could be taken. The wealth thus placed at the mercy of the opposing power would be immense.

The commercial interests and wealth on the lake coast in the United States is far greater than on the Canadian side. Leaving this fact out of consideration, the possession of the Lakes in case of war is of about equal strategic importance to the two countries. One would be led to suppose that the importance of these interests combined would lead the United States to be sure to provide means of securing possession of the Lakes, in event of war, at least equal to those available to England. This has not been done. By the way of the St. Lawrence River and St. Lawrence canals, and the Welland Canal, England can place a naval force upon the Lakes in short order. These canals are entirely within Canadian territory. The part of the St. Lawrence to be traversed not within Canadian territory is to a great extent too wide, or too thickly dotted with rocky, wooded islands, to permit any effective resistance being offered by land forces to the passage of a fleet. The narrowest part of the river is of sufficient width to make effective resistance impracticable on short notice, or with a small force. In regard to the canal locks, the real key to this line of advance and communication, England has facilities for protection for a short period superior to our facilities for destruction. Add to this the presence of a fleet passing to the Lakes, and the possibility of our accomplishing an injury to the locks in time to prevent the passage of the fleet becomes very small.

The defense would act with full knowledge of the importance of the end to be attained and of the short space of time that the defense would be necessary. The short time needed would be greatly to their advantage, as no considerable force could be collected to oppose them within this limit. The day once passed, the purpose would be accomplished, and the destruction or control of the locks would then be without advantageous effect other than to prevent the immediate reinforcement of the force already on the Lakes. This would be of comparatively little injury, as the power that gains possession of the Lakes has everything at hand that is necessary to provide reinforcements. Control is at once gained over an immense carrying power to transport material and supplies, and the work of converting lake vessels into engines of war and building new vessels, if desired,

may be pursued undisturbed. For forty-four miles only on the St. Lawrence is canal navigation necessary. Allowing four miles per hour on the canals, and ten miles per hour for the intervening portions of the river,—which aggregate sixty-eight miles,—less than eighteen hours would be required to pass from Montreal to the open river above the upper rapids. Allowing liberally for delays in getting a somewhat extensive fleet under way, and for the working of the locks, it would not take two days to pass a fleet of one hundred vessels over this part of the route to the Lakes.

By the provisions of a treaty made in 1817, both the United States and England are prohibited from placing war vessels on the Great Lakes, except to the slight extent provided for in the treaty, the exceptions being the same for each country. Through the St. Lawrence and the canals, however, England has provided an approach to the Lakes, and nothing in the treaty prevents her from assembling a fleet at Montreal, or even in Alexandria Bay within a few miles of Kingston. In this manner England may practically hold possession of the Lakes before war is declared. This is the possibility most favorable to England. On the other extreme, suppose the start be made from the British coast. Even in that case, fourteen days is sufficient time for England to place a fleet in possession. If the canals can be held for that time, their main mission will have been fulfilled.

The smallest locks on the St. Lawrence canals are 200 feet long, 45 feet wide, and 9 feet deep; and all have been built with a view to enlarging to 280 feet long, 45 feet wide, and 14 feet deep.

From the U. S. Naval Bureau of Information the statement is obtained that England has 57 war vessels drawing over nine feet and less than twelve feet; 10 drawing over seven feet and less than nine feet; and 44 drawing less than seven feet. 54 vessels could, therefore, pass the canals rapidly and without delay, and 57 more could be passed by removing ballast and armament. 111 vessels are to be considered as at once available for service on the Lakes, all with modern armament, and several of them well armored. Add to this the auxiliaries that could be rapidly transported to meet the fleet on the Lakes, torpedo boats, armament, supplies, crews, marines, and it will be seen that a formidable force could be ready for action in a remarkably short time.

The work of enlarging the canals and locks is provided for. Two of the canals already have locks 270 feet long, 45 feet wide, and 14 feet deep. With the completion of this work, a much larger fleet, and more powerful vessels, could be sent to the Lakes, if desired.

The Welland Canal is entirely beyond the reach of our country, except by invasion by the Lakes, or by crossing the Niagara River. The smallest locks of this canal are 280 feet long, 45 feet wide, and 14 feet deep. An English fleet on Lake Ontario could, therefore, take possession of Lake Erie at once, while a United States fleet coming by the way of Lake Ontario would be promptly cut off from Lake Erie, by the destruction of the locks on the Welland before the fleet could reach that canal.

To be sure, the passage from Lake Erie to Lake Huron could be quickly rendered temporarily impracticable by obstructing the canal through the St. Clair Flats, and by sinking obstructions along the narrower parts of the channel of the Detroit River, where it might be practicable to bring heavy batteries to bear on the location, providing this could be accomplished in time to prevent the fleet from gaining possession. The chances are perhaps about equal as to which could be accomplished first. To provide for a possible contingency at this point, a canal has been projected leading from Lake St. Clair directly across to Lake Erie, through Canadian territory.

An enemy's fleet on Lake Huron could pass to Lake Superior without serious hindrance, unless the canal of St. Mary's River should have been destroyed. Even here a canal is being constructed giving an independent passage through Canadian territory.

No serious opposition would be met with in passing a fleet from Lake Huron to Lake Michigan, in absence of an opposing fleet.

Having briefly traced the advantages available to England for occupying the Great Lakes, and the probable opposition that could be offered thereto, the other side of the question demands attention.

One can rest assured that in the event of war, or even of threatened war, England would take the necessary precautions to thwart the United States in any effort to make use of the St. Lawrence and canals to place a naval force on the Lakes. The many ways available for prevention and delay leave no doubt that

this could be most efficiently accomplished. They need only be mentioned, as their efficacy is apparent. This could be affected by previous possession, if time or forethought has permitted; by the delays and damage that might be inflicted at Quebec, Montreal, and other points; and by the destruction of the canal locks as a final resource.

Turning our attention to other entry-ways, we find but one,—the Erie Canal. Leaving the Hudson River at Troy, this canal connects with Lake Erie at Buffalo. Here communication with Lake Ontario would be blocked, owing to the Welland Canal being in Canadian territory, and being under the control of opposing forces. The only route open to Lake Ontario is by a small canal that branches from the line of the Erie at Syracuse and connects with Lake Ontario at Oswego. By either of these routes considerable time would be consumed on account of the long distance to be covered by means of slow canal navigation. This, in fact, would never have to be considered, as the dimensions of the canal preclude, at the very start, the possibility of its being available as a means of placing effective war vessels on the Lakes. The locks on the Erie are 110 feet long, 18 feet wide, and 7 feet deep. Any boats that could be placed on the Lakes over a water-way of these dimensions would cut no figure in opposition to a fleet such as has been shown could be brought in by the St. Lawrence. Our one entry-way to the Lakes sinks into insignificance.

Let the United States construct the deep water-way proposed, with a depth of not less than 21 feet, and locks of length and breadth to correspond; we shall then have much the advantage of England in a race for the possession of the Lakes, and can send in war-ships of much greater size and power than can be brought in by the St. Lawrence route. At the outside limit, forty-eight hours steaming from New York will then be sufficient to place a naval force on Lake Ontario. Five hours more and it may lie off Kingston, and a few hours thereafter the first lock on the St. Lawrence canals may be in our power. If, upon reaching this point, our fleet should have twenty-four hours the advantage of an opposing fleet, we should have a fair chance to gain at once full control of the St. Lawrence, besides being able to accomplish the first and principal move toward the capture of Montreal and Quebec.

The deep water-way is but one of the measures to be considered in connection with plans for the defense of our northern fron-

tier, but it would seem to be of the first and greatest importance. With any treaty in operation that prevents the United States from building and maintaining a fleet on the Lakes, no other means of defense would be effective without such a water-way. Even in case the treaty were annulled, it would be poor policy for the United States to go to the expense of building up and maintaining a lake naval force, without providing a way by which this force could be transferred for service elsewhere. The money expended for a deep water-way would render our entire naval establishment available for service on the Lakes, and at the same time would provide a great commercial thoroughfare, the benefits of which would be wide-spread and important.

THE MEXICAN ARMY.

BY CAPTAIN F. H. HARDIE, 3D U. S. CAVALRY.

THE Mexicans are descended from two races of people both extremely warlike,—the Indian races of the Anátmal and the old Spaniards, whom at the time of the conquest, no race of men in the world excelled in courage and the exercise of arms; they inherit the fighting qualities of both these people and have always given the highest proof of personal courage, but their history shows that they lack stability when handled in large bodies. In their former wars they have never been thoroughly united in a common cause, for reasons which need not enter into this paper. It is only sufficient to say that good government for more than 15 years has very effectually cemented in friendship the former warring factions.

The population ethnically considered is divided approximately as follows:

1. Full-blooded Indians,	5,000,000
2. Mestizoes (half-caste Indians and whites),	3,000,000
3. Gachupines (Spaniards by birth),	50,000
4. Creoles (whites of Spanish descent),	1,500,000
5. Europeans and Americans,	100,000
6. Full-blood negroes,	10,000
7. Zambos (half caste negroes and Indians),	45,000
8. Mulattoes,	5,000

Total,	9,710,000
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The Indian (pure) is occupying now a splendid place in the government of the country. Juarez, one of the greatest Presidents Mexico has had, is a pure Indian, and Don Porfirio Diaz is half Indian or Mestizoe. One half the army is pure Indian.

For purposes of military administration the country is divided into 13 military zones or departments, each commanded by a general officer. The 1st Zone includes the states of Sonora and Sinaloa and lower California, with headquarters at Hermosillo in Sonora.

2d Zone.—The states of Durango and Chihuahua, with headquarters in the city of Chihuahua.

3d Zone.—States of Coahuila and Nuevo-Leon, with headquarters at Monterey.

4th Zone.—The state of Tamaulipas (the home of the revolutions) with headquarters in Matamoras.

5th Zone.—The states of Jalisco, Colima, and the military district of the Tépíc, headquarters in the city of Guadalajara.

6th Zone.—The states of San Luis Potosi, Zacatecas and Aguas Calientes, headquarters city of San Luis Potosi.

7th Zone.—The states of Michoacan, Querétaro, Guanajuato, with headquarters at Querétaro.

8th Zone.—The states of Mexico, Hidalgo and Morelos, with headquarters at Toluca.

9th Zone.—The states of Puebla, Tlaxcala and Vera Cruz, headquarters at Puebla.

10th Zone.—States of Oajaca and Guerrero, headquarters at Oajaca.

11th Zone.—The states of Chiapas and the districts Chihuitan and Tehuantepec, of the state of Oajaca, headquarters at Chiapas.

12th Zone.—The states of Tabasco and Yucatan, with headquarters either at Tekax or Peto on the line of railroad running from Progreso on the Gulf.

13th Zone.—The federal district of the City of Mexico.

The military commanders of the various zones are authorized to help each other when necessary, without orders from higher authority. The state militia in addition to being under the control of the governors, must also obey commanders of the military zones in which they are situated.

ADMINISTRATION AND STRENGTH.

War Department.—The Secretary of War and Navy, Bureau chiefs and assistants. Two colonels of cavalry, 1 colonel of infantry, 1 lieutenant-colonel of cavalry, 1 lieutenant-colonel of infantry, 3 1st captains of cavalry, 1 of infantry, a 2d captain of cavalry and 1 of infantry, 2 lieutenants of cavalry, 3 of infantry, 2 ensigns, 3 sub-lieutenants of infantry.

Engineers.—1 general of brigade, 4 colonels, 4 lieutenant-colonels, 5 majors, 16 captains, 11 lieutenants and a battalion of Sappers.

Artillery Department.—1 general of brigade and minor officers.

The infantry staff has a general of brigade, 2 colonels, 2 lieutenant-colonels, 3 majors, 3 first and 6 second captains and 12 lieutenants.

The General Officers—active list—are 5 generals of division and 21 generals of brigade.

The Cavalry Staff has a colonel, a lieutenant-colonel, 2 majors, 3 first captains, 4 second captains and 7 lieutenants.

The Medical Corps has a colonel surgeon in chief, 1 colonel as inspector, a major and a second captain. The troops being treated, except in the City of Mexico, by local physicians wherever stationed and most of the time by none.

The Hospital of Instruction and Practice in Mexico has 1 general of brigade, 5 surgeons with the rank of lieutenant-colonel, 1 with rank of major, 2 with rank of 1st captain, 2 of 2d captain, and other minors. Ambulance train and company of attendants.

There are military hospitals at Vera Cruz, Puebla, Guadalajara, San Luis, Matamoras, Tépica, Mazatlan and Tampico.

The national battalion of hospital attendants has a lieutenant-colonel, 4 captains and 4 lieutenants.

The Military Academy at Chapultepec, near the City of Mexico, has a director who is a colonel of engineers, a lieutenant-colonel, a major, 30 professors who are officers, 16 student officers, four companies of cadets numbering 250—each company with its quota of cadet officers, 34 horses, and a battery of light artillery. There is also at this school an artillery post-graduate course to which young artillery officers are detailed for instruction.

Cavalry.—There are ten regiments of cavalry numbering 370 commissioned officers and 4880 enlisted men. Each regiment of cavalry has a colonel, lieutenant-colonel, major, called *jefe* or chief; adjutant, who has the rank of 1st captain; sub-adjutant, ensign, who carries the standard; 1st sergeant, trumpeter; 1st sergeant, saddler; 2 veterinarians; 1 corporal of trumpeters, band—and splendid bands they are; 4 servants for field and staff; 4 1st captains, 4 2d captains, 12 lieutenants, 12 ensigns; 4 1st sergeants, 24 sergeants, 52 corporals; 384 privates in 48 squads; 12 trumpeters; 4 cartmen, 459 horses, but there are never that many.

Infantry.—There are 20 battalions of infantry, numbering 740 commissioned officers and 17,040 enlisted men—each battalion has a colonel, lieutenant-colonel, major, adjutant, 1st captain, sub-adjutant, sub-lieutenant—who carries the colors; 1st sergeant

trumpeters, corporal, band, but not all infantry battalions have bands; 4 1st captains, 4 2d captains, 12 lieutenants, 12 sub-lieutenants; 4 1st sergeants, 26 2d sergeants, 72 corporals; 20 trumpeters, drummers, ten each; 852 enlisted men, divided into four companies of 213 men each, counting non-commissioned officers.

There are four battalions of light artillery and one squadron of horse artillery.

There are also four companies of fixed artillery, corresponding to our heavy artillery,—one company at each of the following places:—Matamoras, Mazatlan, Vera Cruz and Tampico, in all numbering about 2000 officers and men.

In addition to the cavalry arm, and pertaining to the regular establishment, must be classed the Rurales, numbering now about one thousand, a very picturesque and splendid body of horsemen, under their own officers.

There are a large number of officers who are on waiting orders drawing full pay, some 73 of which are general officers, 10 being generals of division and 63 generals of brigade. Then there are 1600 officers from the rank of colonel down, who are drawing half pay.

There are bodies of auxiliary troops stationed at various posts of the country, but principally upon the American frontier, numbering possibly 2000. So that counting in the regiment of the Gendamaría of the City of Mexico, which is a mounted regiment and the handsomest in Mexico, the Mexican army to-day will hardly number 33,000 officers and men.

ARMS.

Engineers, infantry and heavy artillery are armed with the Remington rifle, calibre 43; the cavalry with the Remington carbine, calibre 50. In addition the cavalry have the sabre which is carried slung to the waist, and this is the tactical way of carrying it, but I have seen the troops on the border carry them attached to the saddle and under the left leg. The artillery (light) carries the sabre and also the carbine, which is slung on the back. The cavalry carry the carbine slung on the back, by means of a carbine sling, made of red webbing about an inch wide. I have also seen the carbine scabbard and boot used, in two ways (while in active service), the scabbard under the right leg and the boot behind the right leg, much in the same way as ours is used. The ammunition for all arms is carried in cartridge boxes slung around

the waist. The Rurales are armed with the sabre, which is attached to the saddle, and the Winchester carbine which is in a scabbard and worn attached to the saddle under the right leg. The ammunition is carried in field belts much the same as ours, being made of leather instead of webbing.

The Mexican troops are very deficient in target practice, having little or none, and consequently their marksmanship is very poor. This is due not so much to a lack of appreciation of the value of the same, as to the lack of funds to carry it on. The field and fortress artillery is of a type entirely obsolete, and it is not worth spending any time in its description. The batteries are drawn by mules. In all arms of the service revolvers are carried by officers and non-commissioned officers only.

The regiment Gendarmaria is armed as cavalry. The Rurales mentioned above were originally bandits, who made a living, formerly, by robbing stages and capturing wealthy people and holding them for ransom. During the presidency of Comonfort, these men, by means of the amnesty offered them and high pay, were made into country guards against robbery of all sorts, hence the name "Rurales."

PAY.

Each military district has a "Pagador" or paymaster, who seems to be a civil employé of the government. The money of the country being silver and copper, to pay a large command in this bulky metal requires heavy carts, mule carts being usually employed; for smaller commands use is made of pack animals. The paymasters are always accompanied by large cavalry escorts.

Pay of the army is as follows—Mexican money:

	Per Year.
General of Division	\$6,000.00
General of Brigade	4,500.00
Colonel of Cavalry	2,714.40
Lieutenant-Colonel of Cavalry	1,807.20
Major of Cavalry	1,560.00
1st Captains of Cavalry	1,140.00
2d Captains of Cavalry	960.00
Sub-Adjutant-Ensign, Cavalry*	720.00
1st Sergt. Trumpeter, Cavalry	360.00
1st Sergeant Saddler, Cavalry	360.00
Cost of Band of Regiment, Cavalry	6,000.00

* Carries regimental flag.

Lieutenants, Cavalry	\$780.00
Ensigns, Cavalry	720.00
1st Sergeants, Cavalry	360.00
2d Sergeants, Cavalry	270.00
Corporals, Cavalry	157.50
Privates, Cavalry	135.00

The engineers, artillery and staff get the cavalry pay.

Infantry.—The mounted officers of infantry are paid the same as the cavalry, and the 1st sergeants the same; but all the rest of the commissioned, non-commissioned officers, sergeants, corporals, and privates get somewhat smaller pay.

The regiment of the Gendamaría of the city being in numbers half the size of a cavalry regiment of the line, is the highest paid and costliest of the Mexican army, its maintenance costing \$111,228, as against \$157,336 for a regiment of cavalry of the line.

The Rurales are paid \$45 per month and buy and feed their own horses. In the fiscal year 1886 the amount appropriated for the support of the army was \$12,000,000, being 38 per cent. of the entire revenue of the country.

HORSES.

The officers purchase their own horses; those belonging to officers of regiments in the interior seemed larger and include some really good looking animals. The horses of the men are small, tough and wiry animals, natives of the country.

RECRUITMENT.

The enlisted men of the army are for the most part drawn from the lowest classes of the population; for years the army has been the dumping ground for all classes of criminals, and consequently, in the nature of things, desertions are frequent among those regiments serving on the border, since once across into the United States they are free. Death being the punishment for desertion, those serving in the interior do not often take the risk. Our side of the Rio Grande River is filled with deserters from the Mexican army.

The enlisted men are never, except in isolated cases, allowed outside of their barracks or Jackal stockades without the presence of commissioned or non-commissioned officers.

I have seen two troops of cavalry watering in the Rio Grande at the city of New Laredo, Tamaulipas, the troopers entirely sur-

rounded by officers and non-commissioned officers armed with carbines. I have also seen the infantry out exercising apparently happy, jabbering away, but accompanied by officers and non-commissioned officers armed with revolvers. But strange as this may be, in action, they seldom desert their officers.

An instance of this is shown in the splendid action of a small body of their men in a fight opposite San Ygnacio, Texas, against overwhelming numbers of "Garzistas," who had crossed the Rio Grande from Texas. None attempted to escape and most of those captured were badly wounded. The government has made and is making a strenuous effort to put an end to this system of recruiting, and already the crack regiments of the large cities are filled with an entirely different class of men.

UNIFORM.

The uniform of the Mexican army is copied from the French and is of two kinds only,—of dark blue cloth for full dress and brown linen for all other occasions. It is the same for all branches of the service. A long-tailed frock coat piped with red for the infantry, a coatee somewhat in shape like our cavalryman's dress coat, also piped with red, indeed red is the color for piping throughout the entire Mexican army, for all branches of the service, except in the regiment of the Gendamaría, where white takes the place of red. All enlisted men wear two cords or welts of red one inch apart down each leg. But those cavalrymen I saw in San Luis Potosi and in the City of Mexico wore a very handsome boot. The rank of the non-commissioned officers is indicated by bands of red around the sleeves of their coats, as rank is indicated by our naval officers. The dress hat is a very heavy affair, in shape somewhat like our old infantry dress hat, made of leather but much higher and more awkward looking and has a red pompon, while the cavalryman has a helmet cord of red linen coming from his cap and fastened to his shoulder-strap.

The general officers wear a single-breasted frock coat elaborately worked with gold on the collar and sleeves and in addition wear a silk sash of red, white and green (the national colors) across the breast.

The chapeau is somewhat like that worn by our general and staff officers, but the feathers are white.

The line officers with the dismounted troops, wear a long coat,

single-breasted. And the officers of cavalry wear a sort of shell jacket with three rows of silver bell buttons on the breast, the front, back and sleeves of the jacket being elaborately worked with narrow black braid.

All officers wear the high French cap, and the rank is indicated by the bands running around it, up the sides and on the crown, being of gold lace for the infantry and of silver for the cavalry.

The musicians have in addition a double set of our sergeants' chevrons with the points up, in yellow, on each arm, and from these chevrons hang three small yellow tassels.

On dress occasions only do the Mexican infantry wear shoes, their mainstay being a peculiar sandal, called *guarache*, which answers every purpose for them.

As I have mentioned the picturesqueness of the Mexican Rurales, a description of their uniform will not be out of place.

They wear a high-peaked, dove-colored sombrero, on the left side of the hat is worked a silver "R" for the troopers and the coat of arms of Mexico for the officers. The jacket, vest and trousers are a soft tanned buckskin, yellow in color, elaborately loaded with plated silver buttons on the jacket and down the sides of the trousers, which terminate in a wide flare at the bottom. The jacket has narrow braid worked in fantastic shape on the sleeves and up the seams of the back for the enlisted men. The uniform for the officers is the same as for the men, with this difference, that the officers have silver cord where the men have black braid. The hats are held on by a wide chin-piece of black braid tied under the chin with long flowing ends. Both officers and men wear red neckties of silk with flowing ends. The mountings of the saddle are silver for the officers, but plain for the men. The blanket is crimson. Altogether they are the finest looking body of men in the Mexican army and typical of the country. They also wear a grey jacket and very tight grey trousers for fatigue.

During the festivities at the Mexican capital, Sept. 16, 1891, the regiment of Gendarmaria was stationed, mounted, at the intersection of streets, and also at intervals along the routes of the parade for the purpose of keeping order and clearing the streets. They were extremely civil to strangers, answering all questions with intelligence and courtesy.

A few words more and this paper will close. It was my good fortune, in company with Captain Bourke, to be in the City of

Mexico on the 16th of September, 1891, which was the anniversary of the independence of the Mexican people; there we saw marching past the President about 10,000 Mexican troops of all branches of the service. They presented a remarkably fine appearance. While the infantry did not look well set up, they were tough and wiry, and well bore out their reputation for long and rapid marches; and indeed there is no infantry in any army of the world that can compete with them in this respect. They have a gait analogous to what we term a dog-trot and can keep it up from sunrise to sunset. Those officers who served in Arizona with the Apache scouts can appreciate what this means. Both the cavalry and Rurales looked splendidly and are really handsome. Their cavalry have the double rank formation, and, on the occasion referred to, made the march past in column of platoons at the walk—I did not see them trot. Little or no attention is paid to discipline as we understand it; the sentries on duty walk their post in a very disorderly manner. As for barracks, except in a few of the largest cities, they have none, being herded in Jackals surrounded by high fences, or the *patios* of large private houses hired for the purpose. In the so-called barracks the men sleep on their blankets upon the floor, and think themselves particularly well fed on tortillas and frijoles; meat (dried and jerked) is a luxury. Most of the infantry regiments are followed by large numbers of camp followers, mostly women, who prepare the food and help to carry some of the burdens of the soldiers; on the march these women are capable of making as long distances as the men.

The wildest dream of luxury and ease on the part of the Mexican soldier would not come up to the surroundings which our own men enjoy.

Comment and Criticism.

(The remarks under this head have, generally, been invited by the Publication Committee, which desires that, as far as practicable, these "Comments" should appear under authors' names.)

I.

"The National Guard.—What It is and Its Use."

General Geo. W. Wingate, President U. S. National Guard Association.

COL. RICE'S article is a thoughtful and carefully prepared paper, containing almost nothing to criticise and much which is of great value, especially to those who are interested in the National Guard.

The effectual manner in which the author demonstrates by citations from the highest legal authorities, that the existing uniformed militia of the States is "the militia of the Constitution," should set at rest those theorists who are in the habit of contending the contrary. The authority of the President to issue orders directly to officers of the National Guard, calling them into service, is also clearly explained. This, it would be supposed, was too well settled for discussion, yet a few years since when in a time of some local excitement Gen. Shaler, then commanding the First Division N. G. S. N. Y., expressed an intention to obey such an order if received, a large part of the press denounced him as almost guilty of treason.

The question, as to whether or not the National Guard can be ordered out of their State, or out of the United States, are matters in regard to which there is more general doubt. The precedents of the War of the Rebellion have probably settled that the National Guard should march to any State to which it was ordered. Yet there was so much doubt in those days as to the authority, at least, of the State to compel such a departure, that little if anything was done to punish those National Guardsmen who did not accompany their regiments.

On the other hand, it may be said as an excuse for this that the *esprit de corps* was so strong that none held back but those whose excuses would have been considered satisfactory.

On the march from Harrisburgh to the Potomac in 1863 there was reported to have been a disposition manifested by some of the National Guard regiments in Gen. "Baldy" Smith's division, or some of the Pennsylvania emergency men, to refuse to continue their march across the Maryland border in pursuing Lee. But no public refusal was made. The march was made, and the matter was probably mere irresponsible talk. The authority to order the National Guard entirely out of the country is less recognized. As these questions are likely to come up for practical decision in periods of great public excitement and danger, Col. Rice's demonstration of the right of the President to exact this service from the National Guard is most valuable.

I am compelled, however, to differ from him in regard to the propriety of maintaining the division and brigade organizations of the National Guard when it is called into active service. With the exception of a very few States these organizations are the weak spots in the National Guard of the country. In 1861 and 1862 the National

Guard of New York went to the field by regiments and their brigade and division commanders were appointed by the President from regulars or volunteers. This I understand was the case with the militia of Massachusetts and the other states. It was found satisfactory and worked well. In the invasion of Pennsylvania in 1863 Major General Sanford, then commanding the First Division N. G. S. N. Y., telegraphed the Secretary of War that the men would come more freely if allowed to serve under their own general officers, and it was so ordered. This statement by General Sanford was not true. On the contrary, the regiments which had learned their business in the two preceding campaigns, had a profound contempt for their general officers, whom they knew to be destitute of practical experience in field service, and were horrified at having to serve under them. The experience of the campaign justified all their fears. If Meade had been a single day later, so that the blow Lee intended to strike at Harrisburgh had been delivered, the country would have paid a fearful price for these incompetent officers. The War Department promptly retired General Sanford and when "Baldy" Smith was put in command of the division, he simply ignored his brigadiers and thus accomplished something. Yet the men suffered great privation. While the general organization of the National Guard of the different states is now far superior to what it was in 1863, yet its general officers are rarely fit for active command. In some states, as in Pennsylvania, they have been largely reduced in number and are carefully selected, many being veterans of the Rebellion. But this is not generally the case. As a rule there are too many of them. Often they hold their offices for so long that they lose their interest and force. They have not had practical experience in marching, feeding or fighting their commands, and cannot in the nature of things be expected to have it. Their staff officers are generally selected for other than military reasons and are not familiar with the duties they would be called to perform in service. The staff makes a beautiful display on parade and this is usually considered satisfactory.

If anyone will contrast the management of the different state camps, he cannot but think that the quality of solid work, the work which improves discipline and adds to the effective force of the troops is, in the majority of cases, in the inverse proportion to the number of general officers present.

I look to an advance in this respect before long. Examinations for staff officers and for brigade and division commanders will soon become the rule instead of the exception. Practice will be had in "march outs" and field manoeuvres so as to make general officers familiar with the handling of their men in the field, and what is even more important, induce their men to have confidence in their ability to command them. But until this is accomplished, it will not be safe to place the National Guard in the field under their brigade and division commanders.

Colonel Richard S. Edwards, Commissary General Subsistence, N. G., Pa.

After the first reading of Colonel Rice's interesting article on "The National Guard—What it is and its use," I was inclined to think that it suggested nothing for criticism, so forcibly and ably were the views set forth, save perhaps a matter so insignificant as scarcely to deserve mention. The story of the autocratic potentate who proposed on his return to his own dominions, to extinguish one of the only two lawyers in his realm, whether true or false, is told of Peter the Great of Russia, not of Frederick the Great. This is so evidently a mere slip of the pen, as to be hardly worth the attention called to it. Reading the article a second time, and giving it much thought, it seemed to me to open a fruitful field of discussion, new to me at least, and which after all, can be proved by practical experiment alone, and not by theoretical reasoning. I am compelled to question the wisdom of his suggestion on page 926 "that Congress should provide that men and organizations, especially the

organized militia, should pass at once, *ipso facto*, into the service of the United States from the moment the call is issued, without waiting for any form of mustering." Circumstances render it necessary at times, to determine the exact moment when the troops become part of the forces of the United States.

The official act of muster, open, public and indisputable, the exact time being of record, fixes this beyond question, but it is evident that a question might be raised as to the time when the call would take effect; would it be when made, or received? and in either case might it not be open to doubt, should the desire exist to make it so? Personally I attach little or no importance to form or ceremony; to me, the obligation to speak the truth, either as to memory or belief, is not strengthened by oath or affirmation. But I know that the large majority of people hold a different view. Great importance is attached to form, great sanctity, so-called, to a solemn oath; many would feel bound by it, who would not hesitate to break their mere verbal promise; and in case the militia of one State in the service of the United States is to be sent into another State to suppress insurrection, or mob violence, the natural and proper jealousy of states, touching their prerogatives of sovereignty, would suggest that the most open, public and notorious forms should be used, to make it apparent to all that the troops about to be used were from that time part of the Army of the United States, and that they did not appear as the army of a sister State. But the most serious question of all, and the proper solution of which will be determined by time alone, after a practical experiment, is the power which the President as Commander-in-chief should have over the militia when in the service of the United States. The thought pervading the article, that the division of National and State forces is based upon the inherent right of the people to prevent anything that would tend towards undue centralization of power, is admirable, and well suited to serve the purposes of the people, in framing and living under our system of government, so long as law and order are in the ascendant, or no demand is made to put forth the extreme physical strength of the nation. Should either case arise, by domestic insurrection or foreign war, it then becomes necessary to exert the armed strength of the people. The writer admits on page 916, "By the law of nature, every nation must, in an emergency, have the absolute control of its entire possible military force, consisting of every man that is able to bear arms." To this might be added: By the law of common sense, proved by experience, the absolute control must ultimately be entrusted to one man, in order that the best results may be achieved. It was this that largely brought about the victories of the French army under the absolute control of Napoleon; it was because of the want of this that so many of the movements of both armies in our Civil War were futile and disastrous. Should the danger be great, would not the advantage to be almost certainly derived from the one man power in control of the armed forces, warrant running the risk of centralization that might possibly follow? The writer states, "that the President, when in command of the militia, called into active service, cannot, except perhaps for a temporary purpose, remove or suspend an officer, or appoint his successor, the Governor of the State alone can do it." On page 929, "The President as Commander-in-chief would have no right to remove a division or brigade commander and substitute another." Assuming this to be correctly stated, it would seem to be an element of weakness, and if my proposition before given is correct, it would without doubt impair the value of the military machine, and render it incapable of producing the best results that might be in it. It is unnecessary to go into details touching this. The President and governor might be directly adverse in their views, as witness a recent incident, or might merely differ in opinion as to the fitness or capability of an officer, but the President being in command and responsible for the success or failure of a projected movement, it would seem that he, and he alone,

should have the sole and absolute selection, direction and control of those in his opinion best suited to carry it out. In time of war, the final opinion and judgment of the one man at the head, is thought to be the best obtainable, and while he may be expected to advise and consult with others, the ultimate decision must rest with him. If he is powerless to act entirely and fully according to his own judgment, but must consult and yield to the wishes of another, even if only in the selection of officers to carry out his plans, does not this of itself prevent the exercise of the best ability he may possess? if not then I have read history without effect. In peace all efforts against centralization; in war, the risk of centralization must be taken so as to exert the utmost strength.

Colonel James G. Gilchrist, Iowa National Guard.

The article of Colonel Rice's is a plain exposition of fact that does not admit of debate. Nevertheless, while there is no question about the accuracy of the statements made, the term "militia" is so inseparably connected with so much that is disgraceful in our military history that the popular acceptance of the word had better be retained, viz., the military resources of the nation; the unorganized; the mass of citizens of military age. Just at present the National Guard is going through a formative period. It is far from being a homogeneous force as yet; the events in California are too fresh in our memory to warrant any such thought. That it *will* become a force that will be something like what it is designed to be, a few more "labor" uprisings will amply demonstrate. There can be no long sustained military spirit without service to keep it alive. The monotony of drill, after it is once learned, will rapidly quench martial ardor. There must be some evident practical application of these rudiments to keep up interest in our organizations. It would not be proper to express a hope that opportunity for active service may come often and soon, but the fact that it is the most potent factor in keeping up an interest in military organizations must be apparent to all. But the appearance of active service ought to be easily provided by combining State troops with National in field exercises. It is too much to hope for State or National aid in such an undertaking, but I am confident that many would volunteer, at their own expense, if the opportunity were afforded them.

Lieut. Wm. E. Birkhimer, Adjutant 3d U. S. Artillery.

Colonel Rice has given the service a most interesting paper upon this subject. It evinces careful research in preparation, and its conservatism adds to its weight and the consideration it should and will receive. We will here only notice, and that as briefly as possible, the salient points of the paper.

It unquestionably is true, as contended by the essayist, that the militia of the United States Constitution are State forces. In fact they are so designated in that instrument, where, in Section 2, Article 2, it provides that the President shall be commander in chief "of the militia of the several States, when called into the actual service of the United States." However, the first suggestion to depart from this principle came from the militia themselves. In 1826 a mixed board of army and militia officers, instituted by Secretary of War, James Barbour, to devise a plan for ameliorating our militia system, recommended, as an important feature thereof, an Adjutant General for the whole militia of the United States. The institution of this office, national in character and in the scope of its duties, was soon afterwards recommended by a congressional committee, as have others since then, but nothing was then done, and the scheme sank temporarily out of sight. Recently it has been revived by some militia officers at least, and passing events lead to the belief that there is a squinting in that direction by certain ambitious persons—not militiamen—who seem anxious to sacrifice themselves on the altar of their country as Adjutant General of all the militia.

Although the Constitution reserves to the States the right to appoint militia officers, this limitation is not applicable to the Territories, wherein it was entirely competent for Congress to provide for the organization of the militia, including the appointment of officers, and this frequently has been done. Troops so organized would be classed as Territorial in contradistinction to the militia of the respective States.

It is not believed that the question whether militia are State or National in character and attributes, has ever given rise to much, if any, trouble in this country. Certainly, as a legal argument, Colonel Rice leaves nothing to be said to sustain his—it is submitted the correct—view. This being so, the name *National Guard*, as applied to militia, seems strangely incongruous. It is giving the designation “national” to that which he conclusively shows is not so. This may in no slight degree contribute to that confusion of thought which the colonel finds embarrasses the discussion of the subject. In every aspect of the case, the designation “National Guard” as applied to the military forces of sovereign States of this Union, seems to be inappropriate. Nor are the associations of the term “National Guard” in other countries, before its introduction here, reassuring. It recalls the days of the French Revolution with all their frightful memories, and the Machiavellian policy, though brilliant first campaigns, of Bonaparte in Italy. The National Guards then flourished in France and Italy. There, however, the term and its meaning were in accord; here they are dissonant. It seems questionable whether anything has been gained by substituting for the good old Anglo-Saxon term “Militia”—the pride of the Fathers—this exotic from Latin soil. We prefer and shall make use of the former.

In contending that the States only should appoint militia officers Colonel Rice certainly is correct; indeed, the Constitution leaves no room for doubt. As a practical fact, however, some trouble has arisen, not over the question as to the right to appoint the officers, but who lawfully may command militia. The two questions are not identical. Those familiar with the history of the country will recall the opposition of several States to the War of 1812. One of the most serious phases of this opposition arose out of the position assumed by certain state governors regarding the command of the militia. For efficient administration the President had divided the territory of the United States into districts, placing over them general officers of the regular army, with the duty devolved on each of conducting all military operations in his particular district. Some governors declined to place their militia under these district commanders, claiming that the President alone could exercise such command. This practically restricted the command of militia under all circumstances to officers commissioned by the States. It happened that in some cases the district commander's requisition for troops was ignored. Under such circumstances, complicated by other claims set up by some State authorities regarding calling out the militia, the whole predetermined system of defense, if it did not entirely break down, reached a point of inefficiency justly alarming to all patriots, and created, as we shall hereafter see, an impression adverse to the use of militia in United States service that never has been eradicated from the public mind, causing the President to remark that, if these doctrines were true, then the United States was not a national government for the purpose most of all requiring it.

The question of command here involved has not been judicially settled. The United States Attorney General has given his opinion that the President need not assume personal command, but may place the militia under army officers. This view, it is satisfactory to notice, is taken by Colonel Rice, who, however, appears to argue that, in calling out militia, organizations must be taken intact, and that it would not be constitutional, under color of calling the militia into the actual service of the United States to do so in such manner as to disorganize it. That is understood to be the

colonel's position, and its correctness is conceded. On the other hand, it is not conceived to be possible that the President, under any circumstances, could be actuated by a desire to do such a thing. Who, then, is to judge what portion of the militia shall be called into the service of the United States? Plainly, the President, and he alone. He knows when, where, and in what numbers militia as well as other troops are needed, and when they unite, the Articles of War (122-3-4) determine the question of command. The trouble just mentioned during the War of 1812, was that in certain states the governors essayed to place in the service of the United States more militia and officers of higher rank than the President had called for to meet the particular emergencies. The excess was repudiated by the general government, which refused to bear the expense incident to their being called into the field. Since that time the question has seldom assumed a serious phase. The great point—as to whom should judge when the constitutional exigency justified calling the militia into the service of the United States—was decided by the Supreme Court in favor of the President. As a corollary to the main proposition, all collateral questions, like that of command, have by general if not by universal acquiescence, been conceded also to be entrusted to Presidential discretion after the militia are in the service of the United States. Since the War of 1812, and notably during the several Seminole wars, militia have taken the field under army officers, and rarely, if ever, has the right of command been raised. The question, however, is no longer of much practical importance. The experience of the War of 1812, confirming previous experience in this country, completely, as hereafter will be more fully noticed, eliminated militia from both professional and public consideration as a force to be depended upon for prolonged effort, or for executing successfully the combinations which protracted civilized warfare renders necessary. For these purposes it was seen that we must have armies organized upon different principles.

Colonel Rice does not hesitate to grapple with another important question—whether the militia constitutionally may be ordered on service outside the limits of the United States—and, it is conceived, successfully vindicates the constitutional right so to order them. But, upon this point, the essayist might well have saved himself the labor of his, it is believed, unanswerable argument. Public sentiment decided that question long ago in this country, and adversely to the Colonel's position. In that forum it is matter *res judicata*. Moreover, it is understood that the view that militia constitutionally cannot be ordered beyond the limits of the United States is held by nearly all if not by all writers on constitutional law of the present day; and in this they do but follow in the footsteps of their predecessors. And while we cannot on military principles or on constitutional grounds adopt their views, and must maintain that Colonel Rice advocates the sound constitutional doctrine, yet we consider it useless to discuss the question, settled as it has been by legal dicta, and by overpowering public opinion. The result, for all practical purposes, is precisely the same as though the Constitution in terms prohibited the militia from going beyond United States territory; for, when war is to be waged, it is necessary that our armies meet and overcome those of the enemy wherever the latter may be; and no country will trust, if it can help it, the vindication of its honor to an army whose members may have constitutional scruples against passing the boundary line to meet the enemy. No spectacle more humiliating to national pride or fatal to national existence were possible than that presented when a portion of our forces being engaged in a death-struggle with the foe, the residue, restrained within territorial limits by qualms of constitutional conscience, coldly witness the discomfiture of our arms. One experience of this kind would be sufficient for any nation. However virtuous those who held back might be, though at their homes the most estimable of citizens, as soldiers they cannot be depended upon; and resort,

of necessity, must be had to those not so conscientiously affected. Nor can the nation wait for the battle-field to test this question. It must know that its troops are not to be restrained by such scruples before it dare bring them into the presence of the enemy. To adopt any other course is simply to court disaster. Nor would any wise nation, except under pressure of overruling necessity, resort to the use of such troops. Especially would it not do so if, in times past, its military movements had been defeated and disaster been brought to its arms from the operation of such baleful doctrines. And if it should transpire that expounders of the Constitution, following public opinion, sustain these notions—of restricted territorial limits, nothing would remain for the nation to do but to prosecute her wars with armies so organized as to obviate such difficulties.

As is well known, the administration's plan of campaign of 1812 was the conquest of Canada. At once the question arose, and was elaborately debated in both Houses of Congress, whether or not the militia could be compelled to march into Canada, or anywhere outside of United States territory. Upon military principles there was no difficulty in demonstrating that, if such troops were in any degree to be depended upon for purposes of conquest, it was necessary that their movements be not circumscribed by territorial limits. On the other hand, all opponents of the war, as well as many of its advocates and most zealous champions, maintained that the militia was a force for domestic service only, and that neither any military officer nor even the President himself legally could require them to pass our territorial boundary. No more important principle regarding the use of militia could have been raised. It was argued, not wholly without those exhibitions of temper which frequently attend the discussions of our war-policy, yet with earnestness, learning, a proper appreciation of the constitutional aspects of the case and a patriotic desire to meet them. Those who favored the use of militia, regardless of territorial limits, seemed to have the best of the argument, but their opponents far outnumbered them, nor were the latter confined to any section, but seemed to express the matured sentiments of all parts of the country. The question frequently recurred in Congress and always with the same result. In this discussion, Langdon Cheves of South Carolina delivered a speech in the House, favoring the unrestricted use of militia, which for clearness of argument, closeness of reasoning, and comprehensive grasp of the constitutional principles involved, left nothing to be said on that side. Henry Clay arose and called exultingly on those of opposite opinion to reply. This in no adequate manner was done. The House seemed to be stupefied by Cheves' telling blows. Some desultory attempts were made that day and afterwards, but members seemed to consider that Cheves would most easily be answered by being voted down, which they did without hesitancy.

How much soever we may regret the circumstance, it unquestionably is true, that both contemporaneous and subsequent events, outside the halls of Congress, have shown beyond a doubt that the expressed views of the majority of the House on this occasion voiced the opinions and intentions of the American people. There can be no mistake regarding this matter; they do not intend, as militia, to serve in foreign lands. From 1812 to this time, their employment in this manner has not seriously been considered by the United States authorities who thus but carry into effect a policy deliberately determined upon by the people themselves. In this, *vox populi, vox Dei*.

The relative importance of militia compared with other species of possible national force has greatly diminished since the adoption of the Constitution. This fact in no degree derogates from the moral worth, as civilians, of those found in the ranks of the militia. To a great extent they are the citizens of the country, owners of the soil, and laborers of high and low degree in all industrial pursuits—those who form at once the basis and the superstructure of society. But this of itself does not and never can make

them good soldiers except within a very limited sphere of operation—wholly inadequate to the necessities of the general government. Experience in this country has developed inherent difficulties in converting militia into general-utility soldiers.

Leaving out of view the experience of the Revolution, these difficulties soon began to make themselves felt under the constitutional government. So early as 1791 (chapt. 28, Mch. 3d) the President was authorized at discretion to raise and officer *levies* in place of calling out militia. These *levies* were the precursors of that species of troops denominated "volunteers," which since have come into such general use, and now are so deservedly popular. When, during the administration of the first President Adams, war with France seemed likely, and the nation was arming for the conflict, the raising of troops under the name of "volunteers" was first authorized. Party spirit ran high. The organization of these "volunteers" was opposed not only on the ground that they were troops unknown to the Constitution, but also because it struck the militia a serious blow by withdrawing part of the latter from the sphere of State authority. This opposition was conducted with great skill under the leadership of Albert Gallatin, seconded by William B. Giles and other Republicans. The first—the constitutional—objection made no great impression: it proved to be a sufficient answer to this to call attention to the constitutional power of Congress without qualification "to raise and support armies," and this was one way of doing it; but the second objection was seen to have a better basis, for it was plain that this new force detracted from the numbers of the militia, and necessarily impaired its prestige. So powerful did the opposition to "volunteers" become that their sphere of action and length of service, unlimited at first as to the former and extending to three years as to the latter, were so changed that volunteers were not *compellable* to serve out of their State for more than three months (though voluntarily they might serve longer), and the whole number of volunteers was limited by law to 75,000. This was an avowed concession to the friends of the militia.

Time passed. The war cloud rolled by. The Republican party, defeating the Federalists after a fierce political contest, in which the military principles of the latter were inveighed against with great effect, came into power March 4, 1801. Thomas Jefferson, the founder of the new political faith, was a firm friend of militia. He did not doubt but that it would prove all sufficient, particularly in the first stages of war, to meet all military requirements of the national government. But events proved to be stronger than political theories; and, before Mr. Jefferson, March 4, 1809, laid down the cares and duties of office, the volunteer idea, so much contemned during Mr. Adams' administration, had, with greatly augmented strength, been adopted as a cherished principle. Of course their opponents pointed out this inconsistency; but that availed nothing as against the necessities of the case.

The first warlike movement, under Mr. Jefferson's administration, arose out of the implacable hostility of Spain to our purchase of Louisiana. The act (March 3, 1803, chapt. 32) passed to meet this emergency, provided for Governors of States accepting the services of volunteers as well as of militia, the officers of the former being appointed by the constitutional authorities of the respective States, differing in the latter point from the Federalist rule, under which the President appointed the volunteer officers. This distinction, at the time, was considered to be a great reform, and a great triumph of republicanism; only, however, to be given up under the pressure incident to the earliest stages of a state of war. Spite of early republican predilections to the contrary, the volunteer principle now grew with surprising rapidity. So much was this the case that in 1807, under the combined influence of our strained relations with Spain over the question of Louisiana boundaries and Aaron Burr's conspiracy in the same quarter, the force placed at the disposal of the President to meet this double

danger was 30,000 volunteers. There was only one feature of this act (chapt. 15, Feb. 24, 1807) which recognized the existence of militia, namely, a provision that, until they actually entered service, the volunteers should continue to do regular militia duty. This most reasonable requirement was only adopted after a spirited contest.

From this time on, until war broke out in 1812, every militia was also a volunteer act of Congress. The pacific policy of Mr. Jefferson had bequeathed a war to his successor. During that war regulars, volunteers and militia were all put in requisition. The first named were of course raised under national supervision and officered by the President; the volunteers were raised under State supervision, as under the act of Feb. 24, 1807, just mentioned, until, upon the particular request of President Madison, the appointment of volunteer officers was placed in his hands (chapter 138, July 6, 1812); the militia continued to be raised and officered as formerly—and as, indeed, under the Constitution, only could be the case. It is not saying too much to state that at the beginning of the year 1815, after two and one-half years of war, the conviction had firmly taken hold of the then Administration and of the public mind, that militia, for national military purposes, could not be depended upon. The conviction found legislative expression in act of Congress approved January 27, 1815, which, with the various acts for raising and sustaining the regulars, was depended upon to furnish troops for the next campaign. The act of January 27 referred to, provided simply for taking into the service 40,000 State troops, raised under the provisions of clause 2, section 10, article 1 of the Constitution—a force distinct from militia—and 40,000 volunteers to be officered by the President. Militia as a United States force at this time was not thought of.

This change of sentiment could not have been brought about by other than profound causes. Article II. of the Amendments, adopted immediately after the Constitution itself, declares that a well-regulated militia is necessary to the security of a free state; yet here was the state, when casting about for a military force to preserve her integrity in her hour of extremest peril, deliberately ignoring the militia. Why was this? The reasons were perhaps many. Prior to the breaking out of the War of 1812, the principal causes of militia failures to render acceptable national services, especially in the Indian wars, were, perhaps: 1. The brief terms for which they could be called into the field, thus consuming most of the time going and returning, and making it impossible that they should become seasoned soldiers. 2. A want of discipline and a familiarity with manœuvres, which rendered it impossible for them to inspire confidence in others or in themselves. 3. The great expense attendant upon the use of this species of troops due to their faulty system of supply and of administration. 4. The hardships and inequalities resulting from the system, taking men from their business just long enough to greatly embarrass them, and yet not long enough to render the government any real service. This latter the militia themselves urged with great earnestness.

In enumerating these causes which tended to render militia less efficient than possibly some other forces might be, the patriotism of its members was never doubted. The question was simply a military one. Experience had shown that, except for brief efforts, near at home, the militia were not well adapted; no constitutional question regarding their use was here raised. It might have seemed possible, therefore, by a change of organization (which Congress was authorized to effect) to obviate, in great degree, the obstacles which heretofore had militated against the efficiency of this kind of force.

The War of 1812, however, precipitated insurmountable constitutional difficulties. On October 13th, when the United States troops at Queenston Heights, Canada,

were engaged in a hand-to-hand struggle with the enemy, the New York militia, safe on our own side of the Niagara River, refused to go to their assistance, and, turning a deaf ear to the appeals of their brave commander, declined on constitutional grounds to enter the enemy's territory even though to save the American troops from being overpowered; General Dearborn, moving on the Champlain line of operations, about the same time, was forced to abandon his advance at the line separating the hostile territories, and retrace his steps to Plattsburg because of the same constitutional scruples of the militia; in Massachusetts, the governor not only refused to permit the militia to move out of the State, but, acting upon the advice of the State Supreme Judicial Tribunal, declined to call out or to place the militia under an officer designated by the President, because, first, the exigency justifying calling forth the militia had not in the governor's opinion arisen (although part of the State was in possession of the enemy); second, because the President in person must command militia, or, failing this, militia officers only can do it; the same general grounds were taken by the Governors of Connecticut and Rhode Island; on November 10, 1813, Governor Chittenden of Vermont issued a proclamation, assuming, as commander-in-chief of the militia of that State, to recall its militia, then in United States' service, from their stations of duty in an adjoining State, and, although the militia in a spirited counter-pronunciamento refused to comply, the melancholy spectacle was presented of an acrimonious controversy going on between the governor and the militia of a State over constitutional questions, while the enemy ravaged and laid waste the country. The same governor subsequently refused to call out the militia at the request of the United States' authorities, after the actual irruption of the enemy into New York.

It could not be otherwise than that these transactions sank deep into the public mind; or that the painful convictions arising therefrom never can be obliterated. Plainly the militia, as a national force, when tried in the balance, had been found wanting. Commenting upon this condition of affairs the Senate special committee to which its consideration was referred, through its chairman, William B. Giles, said: "The direct and inevitable tendency of these pretensions would be to deprive the United States Government of powers essentially necessary to the common defense, one of the great objects committed to its charge, to introduce discordant and contradictory counsels into the national deliberations, upon a point, too, most of all requiring union of thought and action." In these views the public mind and conscience concurred. The inevitable consequence was that militia, as a certain element in the national armory of defense, ceased to be depended upon.

Nor was the difficulty arising out of these constitutional views regarding the militia merely ephemeral; it was fundamental. Even in 1855 when the questions involved came up anew in the United States Senate, Robert Toombs, of Georgia, maintained that the position assumed by the New England governors was strictly constitutional, although he acknowledged that they had made a mistake in judgment, the occasion not justifying the application of the principles involved: while as to the refusal of the militia to pass into foreign territory, the venerable statesman and patriot, Lewis Cass, remarked that he supposed there was a valid constitutional objection if the militia were disposed to urge it.

Under the circumstances before narrated, and which brought forth Giles' report, it was not only natural but necessary for the National Government to cast about for some force, besides and in conjunction with the regular army, to carry on its warlike operations and which it had been demonstrated that militia could not be depended upon to do. That force was ready at hand. It was the *United States Volunteers*, organized upon a principle which is a combination of the old Federalist and the new Republican ideas.

True it is that, since the War of 1812, militia have frequently been called into the service of the United States. But it has been for merely temporary and local duty. The most extensive use, perhaps, was during the Seminole war, commencing in 1835, where the militia were soon replaced by volunteers. As an element of national military strength in the prosecution of a foreign war, militia, since their performances during the War of 1812, have not received the serious consideration of the United States Government.

When war seemed impending with Great Britain in 1839, over the boundary-line question, the President was authorized to call out 50,000 volunteers, and \$10,000,000 was placed at his disposal. The same thing, precisely, was done by the act (Chapt. 16, May 13, 1846) declaring a state of war to exist with the Republic of Mexico; and, although this act authorized detaching the militia for a term not exceeding six months after arrival at the rendezvous, it is not known that a single militiaman was called into the service of the United States during that war.

At the commencement of the Rebellion, militia in large numbers were called into United States service. This, however, was but a temporary expedient. Their short terms of service soon carried them, as has ever been the case, to the rear and to their homes. Their places were supplied by hundreds of thousands of three years' volunteers, whose splendid record it is not relevant to speak of here. Suffice it to say, however, that their record confirmed the wisdom of those who, through a long military probationary period, extending from 1791 to 1846, had pinned their faith to this species of troops.

Colonel Rice truly remarks that "the militia is and should be a great power." It depends upon the States to make the militia so. The force is theirs. Theirs likewise is the constitutional trust to render the militia efficient. Congress have only power—and it has been exercised—to provide for organizing, arming and disciplining it. There the national authority ceases, as to this force, until some portion of it be called into the service of the United States. It is believed that the States will be true to this constitutional trust. It is possible that their efforts may not always prove wholly successful. We have had presented in one State recently the spectacle of militia refusing to quell a riotous uprising that threatened at once widespread destruction of property, and the annihilation of the bonds that hold society together. In another State, at about the same time, a large portion of the militia refused to obey the orders of the governor, throwing down their arms in his very presence. Others of their companions having declined to obey the orders of their commander-in-chief, the governor, augmented their insubordination by refusing to deliver up their arms, when he so directed, and the question as to which shall triumph in this unmilitary contest is now before the courts for determination. We do not agree necessarily, and certainly we most reluctantly will be brought to agree, with the governor in his contumelious characterization of these militiamen as mere holiday and band-box soldiers. Nevertheless, we cannot be blind to the fact, unwelcome though it be—that, if militia cannot be reduced to a better condition of subordination and discipline than here is manifested, public confidence in it, even as a State force, may be seriously impaired. Moreover it further diminishes, if possible, their usefulness as a force to be depended upon as troops in the service of the United States; for, if for whimsical reasons they will not obey the State, will they not equally disobey the National Authorities, and in perhaps greater exigencies? It is to be hoped, however, that these amazing acts of military misconduct will prove to be mere excrescences, due to local causes, and indicating the general healthfulness of the great militia system of the States.

If, happily, this should prove to be so, the militia, besides being an efficacious State military force, will be invaluable as a training-school for United States Volunteers. In

times past this has been the case, and, if our hopes prove to be well founded, we may confidently look for the continuance of the militia in this important rôle, and with greatly augmented efficiency.

It is to be hoped that cordial relations ever will be maintained between the regular army and the militia. Jealousy there is ever out of place. They are not so in the economy of the Constitution, and never, except by artificial means, can they become antagonistic. Their spheres of action touch only at rare intervals. The one is wholly a National, the other habitually a State force. When it can do so without too great a sacrifice of its own interests, it is greatly to be desired that the regular army will extend a helping hand to the militia. It is believed that this disposition everywhere pervades the former. An important question arises as to the best means of rendering this good will practically useful. The solution we cheerfully entrust to the constituted authorities. But it would seem that there is no better way to assist them than by our ever setting a good example in all things appertaining to the military profession. Let us set our military standard high, and then strive on all proper occasions, and by all honorable means to raise them up to it. The success attending the effort will depend much upon the character and attainments of the regular officers selected for this work. It demands not only great professional information, but breadth of mind and unselfish devotion to duty. Those selected have our best wishes for their every success.

FT. MCPHERSON, GA., September 17, 1894.

Colonel Frederick Bennett, III. N. G.

Having known Colonel James M. Rice, of the Illinois National Guard, well and favorably for many years, I am not surprised at the excellent manner in which he has treated his subject, "The National Guard,—What it is, and its use," in the JOURNAL for September. The article impressed me as reaching the dignity of a legal treatise, that, if reproduced almost in its entirety in any of the recognized works on Constitutional Law, would give to the author of such a work great honor.

I am, however, disposed to take issue with Colonel Rice in his effort to support Judge Cooley, in that eminent jurist's application of a French idiom (*levé en masse*) to what we all understand to be the constitutional militia—able-bodied male persons between the ages of eighteen and forty-five years. I do not think Judge Cooley, or anybody else, has any right to give, in a great book like the American Encyclopedia, an inaccurate definition. The best possible authorities are the written constitutions of the people, and I have but to cite the fundamental law of Colonel Rice's own State as a step in support of the view here advanced.

Section I, Article XII. of the constitution of Illinois, says: "The militia of the State of Illinois shall consist of all able-bodied male persons resident in the State, between the ages of eighteen and forty-five." It would seem that no broader definition could be expressed, unless it be for the purpose of including boys, old men, and females; and as I understand the section, military training does not participate as an element in the designation of militia. In his article, Colonel Rice, following Judge Cooley, designates those physically capable of military service as *levé en masse*, a term unknown to our laws. So far as I am able to discover, the idiom, *levé en masse*, has a broader meaning than a mere designation of a body. It also conveys the idea of action, the rising of the body. When applied to the military capable, it carries with it the idea of mustering or gathering those who, under our laws, are already designated the militia—or able-bodied persons between the ages of eighteen and forty-five years.

While the popular meaning and understanding of the word "militia" may be bodies of organized and armed men, not to say anything of discipline, such impression is undoubtedly due to the fact that at stated periods, all of the able-bodied

males between the ages of eighteen and forty-five were mustered and drilled. It is the farcical performances of muster and drill of 40 and 60 years ago, that so constantly confront the National Guardsman of to-day as the reasons why the organized militia is not to be depended upon in actual conflict.

Judge Cooley's definition of militia, as quoted by Colonel Rice, "A body of armed citizens, trained to military duty, who may be called out in certain cases, but may not be kept in service like standing armies, in time of peace," might have served for the period contemporaneous with the Mexican War, but since the Civil War, there is no other proper definition than the one usually given in the constitutions of the States.

Judge Cooley's statement that the militia "differs from the *levée en masse* in having a regular organization at all times," is also not in keeping with accuracy, and Colonel Rice himself has recognized this, in giving a caption to his article—"National Guard." He treats of the organized, drilled and disciplined citizens, and not the militia.

The Colonel also cites the Dunn case, in which (a National Guardsman was refused excuse from jury duty by the lower court) the Supreme Court of Illinois in its opinion of reversal seem also to have forgotten the constitution which gave the court being, and read also from the American Encyclopedia, where Judge Cooley seems to have recalled his general training experience.

I accordingly feel and maintain that, notwithstanding the learned authority cited by Colonel Rice, we have no portion of our population which can properly be designated by the words *levée en masse*, but, on the contrary, we have a militia which is annually reported by the States to the Federal Government as such, and we have also, within the militia, in most of the States, bodies of armed citizens, trained to military duty, variously designated in their respective States as National Guard, Volunteer Militia, State Troops, State Legion, and so forth.

With many others, I at one time felt that the word "militia" was one of opprobrium, but since I have witnessed so much of good service on the part of men whose vocations are peaceful, I do not hesitate to say that I feel just as well satisfied with the appellation of "active militia," or "militia," as National Guard.

Captain Frank C. Irvine, O. N. G.

Colonel James M. Rice, Illinois N. G., at the outset in his splendid article on "The National Guard—What it is and its use," even dealing as he does with the purely legal side of his subject, overlooks, it seems to me, the possible fact that a few, if not many of the constitutions of the several States may (and much more rightly than the National Constitution, as Colonel Rice himself explains), define what is and who constitute the militia. His citations of decisions of the courts and the opinions of text-writers and lexicographers, nor yet the references to the constitutional debates, surely do not, in face of the fact that "the sovereign people of a sovereign state" may see fit to set the meaning to the word "militia," qualify his conclusions as to the constituted militia. For instance, the constitution of the State of Ohio, section 1, article IX, declares, "all (white) male citizens, residents of this state, being eighteen years of age, and under the age of forty-five, shall be enrolled in the militia, and perform military duty, * * * as may be prescribed by law."

II.

"The Care of the Wounded in Time of War."

Captain James E. Pilcher, Assistant Surgeon U. S. A.

CAPTAIN POWELL'S readable review of the work of the Medical Department of the army is an attractive presentation of the subject, especially adapted to excite comment. Its clear diction and well rounded periods peculiarly adapt it to vocal delivery and it sounds even better than it reads.

There can never be the slightest question of the enormous value of the services of Jonathan Letterman in putting into shape the system of organized first aid to the injured on the battle-field, which began in the Army of the Potomac and extended to a certain degree throughout the Union armies in the War of the Rebellion. But it would seem to be an exaggeration to say that "prior to his time there were no precedents or models that had proved satisfactory, upon which he could rely for suggestions, etc." The British "Army Hospital Corps," the history of which Longmore gives in considerable detail, was formed four years before the beginning of the War of the Rebellion and accounts of it were entirely accessible at that time. The work of Percy was already historical and undoubtedly had its influence upon Letterman. Major Smart, in a paper read in the same meeting of the Association of Military Surgeons as this one, remarked that the United States army "ambulance corps was organized, based upon a combination of Larrey's *ambulance volante* and Percy's *brancardiers*." Major Hoff, in a peculiarly valuable paper upon the "Military Sanitary Organization of Some of the Great Armies of the World," fully sustains this view of the question of priority. The magnificent organizing genius of Letterman, which assimilated into a homogeneous whole the best features of preceding systems, entitles him to glory enough—his deeds require no borrowed plumage to magnify their greatness.

In his reference to the "multifarious detachment evolutions with which our most recent manual of drill for the hospital corps is replete," Captain Powell seems to have overlooked the real purpose of the evolutions to which he refers. The sanitary soldier is no less a soldier because of his attachment to the hospital corps, and unless he receives a certain amount of drill he loses the alertness and responsiveness to be derived only from that exercise. In the hospital corps he no longer has the drill of the line soldier to keep up his soldierly characteristics, and in supplying this defect lies the especial advantage of the evolutions taught in the Drill Book. Other advantages, such as training the sanitary soldier to work with uniformity and in unison, need not be mentioned. That some of these evolutions would not be adopted in their entirety in active hostilities goes without saying, but the drill in concerted action that men have had, enables them to perform the portion of their work, unavoidable in war time, in a vastly more efficient manner. I have yet to see a hospital corps man whose days are so fully occupied that he cannot advantageously spare the time necessary to fully master and frequently drill in all the evolutions taught in the Drill Book. The hospital corps drill in faithful hands is far from being barren of results or all for show.

In the matter of the equipment of the hospital steward, the author touches upon a point upon which he might very advantageously have enlarged. There really does not seem to be much objection to the sabre. When the hospital steward exercises his administrative functions as a sergeant of the hospital corps, the sabre is simply the sign of his office, nothing more. Performing duties analogous to those of the combatant mounted non-commissioned officers, he wears the same side-arm. But when his field of work shifts to the medical and hospital ground, the sabre becomes a superfluity and is laid aside in the same manner as is the sword of the medical officer.

But there is a singular inconsistency in the equipment of the hospital steward that the author has overlooked. A circular from the Surgeon General's office of May 18, 1893, defines the personal equipment of the hospital corps to be as follows:

"*Privates*.—Blanket-bag, blanket-bag shoulder-straps (pair), coat-straps (pair), canteen, canteen-strap, haversack, haversack-strap, waist-belt, waist-belt plate, meat-can, tin cup, knife, fork and spoon.

"*Hospital Stewards and Acting Hospital Stewards*.—Same as for privates but with side-arm and belt of mounted non-commissioned officer."

The hospital steward's equipment then is practically the equipment of the infantry soldier with the sabre substituted for the rifle. But the fact has apparently been overlooked that hospital stewards and acting hospital stewards are by regulations always mounted when serving in the field. Before the promulgation of this circular, the question of the equipment of a hospital steward, dismounted and in heavy marching order, arose in connection with the operations against the Garza *pronunciados* in Texas in 1891 and 1892. It was decided in the simplest possible manner—in the absence of orders to the contrary, his equipment is the same as that of any other mounted non-commissioned officer when dismounted, *i. e.*, his blanket, overcoat, canteen, haversack, meat-can, tin-cup, knife, fork and spoon being attachments to his saddle, he is without equipment attached to his person other than the belt and the side-arms, and wears a campaign hat but no boots nor spurs.

If the steward were to wear the equipment prescribed he would be very much in the predicament of the rustic who, in pity for his overloaded ass, took the burden upon his own shoulders and then, mounting the beast, jogged on his way serenely conscious of a good deed done. The absurdity of a mounted man wearing the burdensome field equipment of a foot soldier is so apparent that it will certainly never be done in practice.

The subjects touched on in Capt. Powell's article will stand a great deal more discussion than the space allowable for a comment will permit. The medical organization of our army is excellently adapted to the care of the sick in time of peace, and we have a few brief outline regulations relating to the hospital corps in time of active hostilities; we have some excellent field medical cases and certain other field furniture—some of which is entirely incompetent for the purpose—but we have no complete organization for war service. In case of extensive hostilities, another Letterman would have a field for his talents no less broad than did his distinguished prototype in the War of the Rebellion. He would truly enough have more to begin with, but he would have to go farther.

Captain Charles F. Mason, Assistant Surgeon U. S. A.

Captain Powell, Medical Department, in his article on the care of the wounded in battle, in the September number of the *JOURNAL OF THE MILITARY SERVICE INSTITUTION*, raises some questions of interest to us all.

He evidently does not approve of the detachment manœuvres as laid down in our excellent new drill manual for the hospital corps, and says that they leave upon his mind an impression of uselessness and barrenness as to results.

This may be the case with many of us at first sight, but to one who carries out all the provisions of the manual faithfully, as I have no doubt Captain Powell does, and looks ahead in his search for results, their extreme usefulness, necessity indeed, must become apparent. One of the principal objects of a drill manual, as I understand it, is to drill the men in all movements which they may in actual service be required to perform, and surely in active service our detachments will be large enough to permit of and necessitate movements as a body, such as those laid down; another purpose is

to enable the men to work together quickly and without hesitation, and to this end these movements certainly contribute. Captain Powell's argument as to barrenness of results would be just as applicable to the evolutions of soldiers of the line : to one without military training these movements would seem to be mostly for show and fruitless of good, but the soldier knows that they all have their purpose and are merely a course of preparation.

I agree with Captain Powell that simplicity is most desirable, but in trying to simplify let us not omit essentials.

In considering the matter of equipment I am in accord with Captain Powell in condemning the cavalry sabre for our non-commissioned officers ; it is incongruous, useless, and an absolute hindrance. I would give the stewards the hospital corps knife.

As to the functions of the company bearers, I think that the provision of the regulations that they shall carry the wounded to the rear until relieved by members of the hospital corps a wise one : somebody will assist the wounded up to this point and by officially designating that the company bearers shall do it and *they only*, much unnecessary straggling from the field will be avoided ; this provision I believe will increase the efficiency of the company instead of diminishing it. However, it is probable that in future battles the circumstances will be exceptional where any one will render much assistance to the wounded during an engagement ; afterward, as Captain Powell states, the company bearers will form a more or less useful adjunct to the hospital corps, though it must be borne in mind that these men (company bearers) will hardly be in condition to do much work after an engagement.

III.

"The Judge Advocate's Department."

Captain William P. Evans, 19th U. S. Infantry.

IN his comments on Colonel Clous' sketch of his department, Captain Birkhimer touches again on the construction that is given by the War Department to Sec. 1202, R. S. ; the pertinence of the comments being presumably due to the fact that Captain Birkhimer regards the construction of this statute, which is now in force, as the construction of the Judge Advocate's Department, adopted by the War Department, rather than the construction of the War Department itself.

How far a court-martial may go against a recalcitrant civilian witness is indeed, as the captain says, an interesting question,—or we might, perhaps, better say, it *was* an interesting question before the statute referred to was construed into "innocuous desuetude." Sec. 1202 *seems* to say that a court-martial may go just exactly as far in this respect as "civil courts of criminal jurisdiction sitting in the state, territory or district in which the court-martial may be ordered to sit" may lawfully go. The laws of such "states, territories or districts" are usually clear enough, and it is only where they are not clear enough to warrant procedure under them, by the courts referred to in the statute, that it would seem impracticable for courts-martial to apply the law. The statute would seem to confer on judge advocates not only the statutory powers of these "civil courts of criminal jurisdiction" but also their common law powers as well, in so far as such powers are applicable to the end in view.

The fact which seems to render the present construction of Sec. 1202, R. S. specially open to criticism is that under it we may resort to compulsory process to carry out one part of the law but may *not* resort to it to carry out the other. A witness *may* be compelled to appear but he *may not* be compelled to testify. A recalcitrant civilian may not set at defiance the mandate of the court which commands him to appear, or he will be seized and forcibly brought into the presence of the court, but, under present construction, he may treat with contempt the mandate of the same court

which commands him to testify, although the statute says that process may be resorted to, to compel him "to appear and testify." Captain Birkhimer says that "it is not conceded that a court has authority to coerce the witness." What, pray, is the arrest under the writ of attachment if it is not coercion? Is this conclusion of Captain Birkhimer's also based on "construction"?—that mental process which, in its legal application, produces results which are so mysterious and perplexing to us officers of the army who are not "learned in the law." It would certainly seem that a disobedient civilian witness may, under present construction, be coerced to appear. He may then laugh the court to scorn, claim and get his discharge, get his four dollars a day and expenses from the Government coffers and go home with such an appreciation of the dignity of military courts as his experience may seem to warrant. Construction says that the only process which may be resorted to "to compel witnesses to appear and testify," is the writ of attachment, but section 1202 seems to say that any or all processes may be resorted to "which civil courts of criminal jurisdiction" may lawfully have recourse to.

A word as to the sanctions of this law. A study of the laws of the various states will show that they are not without the necessary sanctions to render them effective. Sec. 1202, by clear implication, has the same sanctions in the various states, as have the local laws which bear on this class of cases.

As Captain Birkhimer, very aptly to the point under discussion, says: "We may not make law for the legislative department." The converse of the proposition is equally true: we may not unmake that which the legislative department has made; nor may we construe it out of existence. "The law is common sense," and we cannot violate the canons of common sense any more than we can violate the canons of construction, without quickly going astray. The fear lest we may violate the constitutional right of some recalcitrant civilian witness (and his so-called "rights" are usually invoked to the detriment of society), should not deter us from asserting the rights and dignity of courts-martial, which are committed to our keeping. If the civilian's rights are infringed upon, he has his relief in the civil courts. Let us claim the debatable ground and relinquish it only when we are confronted by adverse judicial decisions. Let us pry our law-making powers the compliment of assuming that they were not unequal to the task of formulating their "plain intent" in words that are legally sufficient for their purpose. If statutes are to be pronounced inoperative they should be so pronounced by judicial decisions and not by the opinions of executive officers. It will then be early enough for us of the executive departments to say that such statutes are legally of no effect.

A defense of the treatises of Colonel Winthrop, at this late day, would hardly seem necessary. The cordial reception that has been accorded them by soldiers and citizens, by lawyers and laymen, would seem to be the best voucher for their great value to our profession. Captain Birkhimer suggests that the author might better have designated courts-martial as "Courts of Honor" rather than as criminal courts. The term "Court of Honor" might have had some significance in the days of chivalry, when honor was supposed to be the special characteristic of a small portion of mankind which was "born, booted and spurred to ride," while the rest of mankind was "born, saddled and bridled to be ridden." The term has but little, if any, technical significance in these days of utilitarianism, when our rights and duties are defined by law with such minute particularity. It is to be hoped that *all* our courts, both civil and military, are courts of honor, but they are more than that. If a court having jurisdiction of a long list of statutory offenses and of "all crimes not capital and all disorders and neglects which officers and soldiers may be guilty of, to the prejudice of good order and military discipline," is not a criminal court, then it would seem difficult to classify it with any of the courts that are known to modern law.

Reprints and Translations.*

THE FUTURE OF THE WEST INDIES AND THE NICARAGUA CANAL.

BY MAJOR OTTO WACHS, GERMAN ARMY.

Translated from The Deutsche Rundschau.

BY FIRST LIEUT. CARL REICHMANN, 9TH U. S. INFANTRY.

IN Germany whoever hears the name of America mentioned is reminded in the first place of the extensive territory of the United States; it is only in the second place that some thoughts arise of South America, with which German commerce entertains close trade relations on both sides of the seas; and it is only in the last place that he directs his glance to Central America and the series of magnificent islands, to which, following the discoverer, who in his westward travel believed he had found the looked-for India, we still apply this name, but distinguish them as the West Indies. In our day, to be sure, the imposing Columbian celebration in America and Europe on the one hand, and on the other the sad fate of the Panama Canal, with its wretched after-piece in Paris, have served to fix the glance of many upon the countries where the great Genoese, who did not, indeed, find what he sought, but more than that, discovered a new world.

If we Germans have as yet given but little attention to this extensive and productive part of the western continent, it is time we examined the West Indies and Central America more closely; for things are preparing there which, at an early date, will not only decide the fate of those countries, but will exercise the most potent influence on Europe, on commerce and the politics of the whole earth.

Let us examine these extensive land and water tracts geographically.

I.

From the southern end of the North American peninsula of Florida the Greater and Lesser Antilles stretch in a wide sweep to the southeast, approaching South America in the island of Trinidad. The obtuse angle which the Greater Antilles form with Florida encompasses the elongated group of the Bahamas.

To the west of the peninsula of Florida and of the great string of island pearls, whose parts, to some extent, are still more closely linked together by bars, reefs and coral rocks, there lies, with one continent on the north and another on the south, resting their backs against the isthmian wall, the

* Please address communications concerning reprints, translations and reviews to Lieut. J. C. BUSH, editor of this department.

Mediterranean of the New World, which, despite all diversity, recalls that of the Old by its many analogies. In the first place, the extent of the West Indian Sea from southeast to northwest is but little less than that of the Mediterranean from Syria to the Pillars of Hercules, and, as the Mediterranean is divided into an eastern and western basin by the constriction between Italy, Sardinia and Tunis, so here the long sweep of the island of Cuba, like a partition wall, together with the peninsula of Yucatan, creates two separated, great gulfs, the Gulf of Mexico and the Caribbean Sea. Here, likewise, an isthmus divides two continents, and as here but one grand water course, the venerable, ancient Nile empties its muddy waters into the Mediterranean, so in America there is but one, the great, pulsating artery of the Mississippi, which rolls enormous masses of the liquid element into the Gulf of Mexico. Dissimilar, however, is the division of the two Mediterraneans from the Atlantic; for the eastern one, well-nigh an inland sea, has but the small, narrow gate at Gibraltar, while the western possesses suitable routes of navigation in its many lines of egress. In its importance the Mediterranean was, and to-day is again a world sea, lying as it does in the temperate zone and amidst the continents of civilization of unfathomable age; the importance of the American basin lies exclusively in its favorable geographical position and in its close proximity to the powerful United States.

On closer examination of the Gulf of Mexico, with its rather regular outlines, we find it encompassed in the first place by North American territory. The peninsula of Florida projecting far southward forms the eastern setting of the scene. Westward from the point where Florida is rooted to the continent, it is that continent itself, which, pushing forth the Mississippi Delta at its middle, encompasses the Gulf on the north. Next in the west follows the isthmian part, which, thrusting the Yucatan peninsula far out in the waters, embraces the Gulf from the south. Halfway between the Yucatan Cape Catoche and the Florida Cape Sable, distant 700 kilometres on an air line, the northwestern coast of Cuba confines the Gulf on the south. The greatest extent of the Mexican Gulf, 1800 kilometres, is found on the line drawn from the northwesternmost point of Florida to Vera Cruz.

The peninsula of Yucatan, together with Cuba, severs the Mexican Gulf from its larger, southern neighbor—measuring 2900 kilometres from east to west—the Caribbean Sea. This basin borders in the west on the Isthmus and in the south on the northern shore of South America, while in the northeast it is encompassed in wide sweep by Cuba, Haiti, Porto Rico and the Lesser Antilles. Lastly the chain of the Bahamas forms an exterior barrier to the Mexican Gulf as well as to the Caribbean Sea. This extensive Central American island chain of the Bahamas, reared on coral rock, with the more or less volcanic Lesser Antilles, has a total length of 3000 kilometres and is approximately parallel to the isthmian coast of the Pacific.

The Mexican Gulf, oval in form and inferior to the Caribbean Sea in extent as in depth, is connected with the latter by the Channel of Yucatan and with the Atlantic by the Strait of Florida, both having an average

width of 250 kilometres. The communications between the ocean and the Caribbean Sea are naturally more numerous; as the most frequented, we name the Windward Passage (between Cuba and Haiti) and the Mona Passage (between Haiti and Porto Rico), the latter having a width of 140 kilometres.

In the northwest under the cloudless, steel-blue arch of the heavens there nestles close to the Caribbean Sea, radiant in colors, the more sombre Gulf of Mexico. In the neighborhood of quiet and restful localities, where the eye may dive deep into the blue of the sea, wild waves, now falling with the ebb, now rising with the flood, thunder against overhanging, lowering promontories of volcanic origin, against eroded cliffs which seem to tremble under the shock, or precipitate themselves with seething froth over coral reefs visible at intervals. The Gulf Stream and the intimate connection of the West Indian waters, together with the air currents, are the reasons why the waters often rise in towering, appalling masses and tear up the bottom, while, on the other hand, high rocks and highbacked islands and islets offer calm seas to the skipper.

This great West Indian sea-basin is, as stated, open to communication with the world only to the east, toward the Atlantic; on the west it is encircled by the high-rearing isthmus of Central America. The time, however, is not remote when a waterway will pierce this isthmus, bringing the Eastern and Western hemispheres, the Atlantic Ocean and the Pacific, in direct and rapid communication. The incalculable importance of this world route became apparent to the Conquistadores a short time after the discovery of America, and it was chiefly the conqueror and viceroy of Mexico, Ferdinand Cortez, who sought for a waterway between the two oceans. He writes to Charles V.: "I have commissioned Cristobal de Olid as commander of a flotilla and propose to send him to the north coast to occupy the headland or cape of Hibueras (Honduras) and along the coast to Darien, because it is the opinion of many seafaring men, that a passage to the other ocean (Pacific) exists through that bay. To find such a passage is the object I am most strenuously endeavoring to attain, owing to the great service which will, in my opinion, thereby be rendered to Your Imperial Majesty." Later Cortez dispatches three caravels and two brigantines and writes: "I consider it the greatest service I could add to my previous services were the passage to be discovered through my efforts. If it do not exist, there are extensive and rich countries to be found from which Your Imperial Majesty may reap great benefits. Besides, it will ever be of great advantage to Your Highness to know that such a passage does not exist." He further reports: "At the end of this year I despatched a squadron to the south and to the north, and the secret must be explored. I am dropping all other advantages and interests for the sole purpose of continuing in this effort. May the Lord direct it for the best, and fulfill Your Majesty's wishes and my desire of serving you." Another time Cortez says hopefully: "I am convinced that a way through the continent will be found, for nothing can remain hidden before the success of Your Majesty." The Emperor's desire could not be fulfilled; European complications and lack of funds prevented him from carrying out his grand idea of constructing a

waterway by the labor of man, and extort with the help of skill what nature had declined to grant. Charles's son, Philip, thought otherwise: "If the Lord," thus reads his decision, "had desired a canal in Central America, he would have created it." The Spanish historian, José de Aosta, considers the plan of water communication sinful, "because God had deviously separated the two oceans by land in order to curb the fury of the waves." It is only in our day that the plan has been resumed with energy; though the attempt of Ferdinand de Lesseps, after a waste of millions of money and the sacrifice of the lives of thousands of workmen, may now be considered as stranded, yet the successful termination of the second plan, utilizing the Lake of Nicaragua, is guaranteed by the energy of the North Americans. Although the company formed for its construction is at present prevented by financial difficulties from prosecuting the great work, no one doubts that the Government will take the matter in hand, the more, as in his message to Congress on December 4, 1893, President Cleveland emphasizes the fact that the United States have a surpassing interest in the construction of the canal under the auspices of America.

The idea of passing the canal through the Lake of Nicaragua is not new. As early as 1665 the pirate Edward David brought the news to Jamaica that the lake could be connected with the Pacific without much difficulty. Toward the Atlantic the San Juan River forms the natural egress. It may thus be explained why England in her conscious endeavor of securing to herself the decisive points along the world's communications—the Cape of Good Hope, Singapore, Gibraltar, Malta, the Suez Canal—has endeavored for a long time, though in vain, to gain influence over Nicaragua or a firm footing in that country. Thus when in 1779 war had broken out between England and Spain, Great Britain approached the canal question in an attempt to seize the tracts which would be crossed by the interoceanic route, and an expedition was sent to Nicaragua under command of the afterward celebrated Nelson. The expedition failed of its purpose chiefly because the troops fell a sacrifice to the unhealthy climate.

There can be no doubt that the Nicaragua Canal will raise the West Indies to an extraordinary importance which now is beyond calculation. This rests in the first place on the geographical situation, which makes the West Indies the connecting link between the longstretching continents of North and South America. A glance at the globe suffices to show that America occupies the middle of the earth, its face toward Europe, its back toward Asia. The centre of this mid-earth is the West Indies, where a lavish nature, tropical climate and prolific soil reward the laboring hand of man, and we must add to this the remarkable formation of islands and favorable development of coast, the river and ocean routes leading to the north, east and south, thus promoting commerce. Influx and efflux to-day take place in the east only, and, compared with the activity here, life and energy stagnate in the west, where the great chain of the Cordilleras cuts off communication. What forcible changes the opening of the Nicaragua Canal will and must produce some day can be but guessed at now, though this much stands beyond cavil, that an immeasurable shifting of the relative commerce, possessions and power will take place, and that nowhere

better than in the West Indies will the truth be confirmed of the saying :
"Initium scientiæ politicæ geographia."

As early as 1847 Napoleon III. compared, in a detailed essay, this artificial water connection of the future with the advantageous geographical situation of the European channels. Any comparison of the completed water route in the New World with the natural ones between the Pontus and the *Ægean* Sea, must, in our opinion, be unfavorable to the latter. For, though the importance of the latter for all time is certain, yet they cannot compete with a highway on which the whole world is dependent. When the barriers of the isthmus shall have been pierced and the central gate of the Pacific opened, then the force of the two oceans must disclose itself, founded upon the incomparable base in Nicaragua, the battle-field of peaceful and warlike competition. Incomparable we call this base, not merely because here there will be established the great warehouse of the world, but because high politics will be directed in other paths, and because every stone thrown in the canal will produce wide circles to the east and west. From its completion will date a transformation and revivification of the great economical, political and military relations.

Because this one is straightest and easiest, there will be but one world route, one universal path, joining the Pacific to the Atlantic and the latter to the Indian Ocean, and thence leading back into the Pacific. This is the great ring whose eternal passes, constructed by nature herself, are represented by the gates at Gibraltar and Singapore, to which are now added the one rendered practicable by human skill at Suez, and the one to be rendered so in Nicaragua. Natural superiority is assured the possessor of the Nicaragua Canal ; this, however, does not in itself entail strategic superiority ; the latter requires other factors which we shall presently discuss.

When we spread out the map and follow the maritime routes which lead from Greytown, the eastern exit of the Nicaragua Canal, to the coasts of the territories of the Union bordering on the Gulf, and to the most important Atlantic coast lines, *i. e.*, where the chief weight of the United States lies and the continent is most accessible, we find that these routes favor North America to a high degree. The advantage of the natural communications inures only to the commercial routes. For the same map informs the trained military eye that the situation is reversed as soon as the British jack appears and bars the road in the West Indies to the flag with the stars and stripes. And to this it will come beyond doubt. The new canal will manifest not only peaceful effects, but incite a jealousy which threatens again to make these islands, soaked in blood for centuries, the theatre of mighty conflicts. This will be recognized as soon as we examine more closely this world of isles with its inhabitants, and the encircling coast-lines of the continent as well as their military advantages for attack and defense.

II.

It is plain that any investigation of this character must begin with the British colonies in the West Indies ; for here, as everywhere, Great Britain not only holds the keys to the routes of navigation, but also holds, as we

shall presently see, localities whence districts of the South American continent can be dominated from a distance.

Eleven hundred kilometres from Greytown, or San Juan, the eastern outlet of the future Nicaragua Canal, we find Jamaica, in the hands of the British since May 11, 1655, at which date Admiral Penn and General Venables, dispatched by Cromwell at the head of 10,000 men, wrested the island from the Spaniards after a weak resistance. Jamaica (10,860 square kilometres, with 639,000 inhabitants), the magnificent island of rivers and forests, represents almost one-third of the British possessions in the Antilles and embraces nearly one-half of their inhabitants. The colony occupies a central position not only as regards the West Indian islands (between Cuba, Haiti and the Lesser Antilles), but also with reference to the southern coast of the Union, the east Isthmian coast, and northern South America (Colombia and Venezuela). But what is equally important for our purposes is the fact that Jamaica is centrally located not only on the direct route from Greytown to the North American ports and to Europe, but also that Kingston forms the starting point for large operations on all the routes named. On the southern front of the island, facing toward Greytown, Kingston, the present capital, founded in 1692, with 30,000 inhabitants, is situated on an elevation overlooking the best harbor in the island. The place owes its existence to a frightful earthquake on the 7th of June in the year named, which almost completely destroyed Port Royal, of which the "New History of Jamaica" asserts, "that it was the most beautiful city in the West Indies and the richest spot on earth." To describe its situation more in detail, Kingston stands on the middle of the northern shore of a wide, harborlike basin, which, from 3 to 6 kilometres wide from east to west, and about 14 kilometres long, is separated from the sea by a narrow neck of land, the Pallisados. The Port Royal of to-day rises on the western part of the Pallisados and on the spot occupied by the town destroyed in such an awful manner. In this latter place military and maritime life prevails (here is the naval arsenal and marine hospital, the dockyard, coal depot and commissary storehouse), as commercial and industrial life does in Kingston. The channel to Kingston harbor, rendered difficult by shoals, reefs and sandbanks, runs around the western end of the neck of land beyond the point where the east and south channels meet in front of Port Royal. The local pilots guide vessels of deepest draught, with the greatest security, through these natural, protecting barriers into this harbor, in view of its size, one of the most prominent in the world. Its depth is sufficient to float any vessel, since over large surfaces, as for instance along the quays of the two towns, it amounts to from 12 to 22 metres. Convinced of the importance of the place, Great Britain has fortified the entrance to the harbor, already rendered secure by nature. On Port Royal Point, rises Fort Charles and, near it, Fort Victoria. Opposite these works lie the Apostle Battery and Fort Henderson, which, with the two former, guard the narrow channel, so that a war vessel is not likely to attempt to force an entrance. Fort Augusta, an extensive work on a narrow, sandy neck northwest of the Pallisados, is now without armament and garrison, since malaria carried off regiment after regiment. It is at present used as a powder magazine. On

the southern summit of Long Mountain at an elevation of 160 metres, rises a strong martello tower visible in the far distance and commanding with its guns the harbor from east to west. Lastly we mention the Passage Fort in Hunt Bay, the northwestern part of the lagoon. Formerly Kingston was considered impregnable by reason of the conditions of water and fortifications; to-day it would be difficult to defend the city against long range modern guns, and it must rely for protection upon the British fleets. Ever since known, Port Royal has been a rendezvous of British war vessels, which here sought provision, refitting, etc. Nelson, Collingwood, Jervis, and many other heroes of the sea, came here to anchor; and here also the buccaneers plied their trade in days gone by.

An ample supply of good water can be taken aboard in the harbor.

Finally, Kingston is a great commercial port whose importance is bound to increase largely with the opening of the Nicaragua Canal, and we can estimate what resources the floating warlike material will find stored here.

Between Kingston and Cape Antonio (the southwest point of Cuba), 950 kilometres distant, lie the three Cayman Islands—Great, Little and Brack. In these regions, along a much navigated route, they are the westernmost British insular possessions. And safe places of refuge, even for large vessels, are found on the west side of Great, and on the south side of Little Cayman, as well as in Anchor and Scott bays. In addition to the islands mentioned, a large slice of the continent on the southwestern half of the eastern coast of Yucatan, British Honduras, is in possession of Great Britain.

III.

We now ask our reader to cross the Caribbean Sea with us to its eastern boundary, the Lesser Antilles. Stretching through nine degrees of latitude (10th to 19th), they show wonderful contrasts in form of surface and development of coast-line, while a tropical nature here lavishes her gifts. In spite of the relatively limited territorial extent, the archipelago, as regards its European possessors, represents a kind of international exposition; here, too, England has secured the best part for herself, holding Trinidad (4544 square kilometres, with 196,000 inhabitants) since 1797. This southernmost, largest, richest and most important of the Antilles is washed on the north by the Caribbean Sea, on the east and south by the Atlantic, and on the west by the waters of the Gulf of Paria. The latter is linked in the north to the Caribbean Sea by the "Dragon's Mouth" channels—so called by Columbus on account of their rapidity of current and changeability of winds—and in the south to the Atlantic Ocean by the "Serpent's Mouth."

Though the formation of the coast has denied the conditions necessary for the construction of a harbor suitable for the largest ships, yet nature has provided within the almost completely landlocked Gulf of Paria several anchorages over good ground, which are safe on account of the regularity of the air currents (hurricanes are rare), and also because the high waves of the Gulf are not felt and ocean tides are rendered harmless by necks of land projecting westward.

Port of Spain (Puerto de España), the capital and principal European settlement of the island, with 34,000 inhabitants of rather mixed nationality, has the most frequented roadstead and 10 metres of water. The place is located between the coast and the foot of the St. Anne Mountain. The heights of Lavantille and Abercrombie command the city and roadstead from the northwest, and are crowned, at an elevation of 374 metres, by Fort George, which is in bad repair. Not far to the east of the anchorage we perceive the ruins of the tower of St. David at an elevation of 125 metres above sea level. As second roadstead, we mention San Fernando (6000 inhabitants); it has 18 metres of water and is protected by the water-battery.

In the strong current of the Orinoco, 50 kilometres northeast of Trinidad, rises, like an outwork, the island of Tobago (950 square kilometres, with 19,500 inhabitants), while Grenada, 125 kilometres distant (344 square kilometres and 44,000 souls) may be regarded as a detached fort in the northwest. If Tobago is important by reason of Man of War Bay (spacious, safe, 36 metres of water), and Courland Bay (18 metres of water), then a veritable pearl passed from French into British hands with Grenada in 1783. Its high value is constituted by St. George Harbor, almost landlocked and encircled by heights. The island capital of the same name lies in terraces along the northern edge of the basin, the entrance to which is constricted to 800 metres by two promontories. The harbor, city and all military establishments (hospital, arsenal, coal depot, etc.) are protected by strong forts and water batteries. The aspect of St. George reminds one of La Valetta at Malta; only this Malta is as luxurious, as that of the Old World is bare and rocky. If we add, that a good and ample supply of spring water exists, no doubt will remain of the importance of this *point d'appui* for vessels.

Between Grenada and St. Vincent, 125 kilometres distant, lie the Grenadine islands, about 100 islets and reefs (84 square kilometres, with 7000 souls). The intervening channels are free from danger.

The island of St. Vincent (held by the British since 1763; with the exception of the short period from 1779 to 1783), a mass of barren, volcanic rock, possesses in Kingston Bay an anchorage 1200 metres wide by 1600 metres long, with from 36 to 50 metres of water. In the capital (5000 inhabitants), which bears the same name as the bay, the European and American cables meet. Town and harbor are protected by Fort Charlotte and a strong battery at an elevation of 212 metres. At Porto Grande, the second anchorage of the island, a German firm has established a depot of Westphalian coal, with a capacity of from 3000 to 4000 tons.

The extreme eastern island of the Lesser Antilles is Barbados (430 square kilometres, with 184,000 souls); discovered at an early date by the Spaniards, it came in British possession in 1625. The manner of taking possession is singular in character,—the men of the frigate *Blossom* cut the following words into the trees: "James I. of England is King of this island." Its seaward location alone is sufficient to create unusual interest in Barbados; for all sailing vessels coming from Europe to South America put in here and enjoy the advantage of being able to reach any West Indian island, thanks

to the trade-winds which blow 9 months in the year. Besides its favorable situation from a mercantile and strategic point of view, Barbados can boast of a splendid harbor, Carlisle Bay, which has a depth of 52 metres, is protected from the northeastern trade-winds, and offers ample space for 500 vessels. Bridgetown, the capital (21,000 inhabitants), is given in keeping to Forts Willoughby and Charles, and Battery Ricketts. Sad adversities have frequently visited the place. Not only has it been repeatedly destroyed by great conflagrations, but it is exposed to dangerous hurricanes which, rising suddenly and breaking all resistance by their force, sweep everything before them and leave nothing but a bare, desolate field of débris, when nature has calmed down. Yet after each catastrophe Bridgetown, which seems to be blessed with eternal life, boldly rears its head. Were it possible to transplant the harbor of St. George from Grenada to this place, Barbados would be that island in the universe which no other could rival. Barbados, the military headquarters of the British West Indian department, has a coal depot of the first class, hospital, naval arsenal, etc.

The island of St. Lucia (614 square kilometres and 45,000 inhabitants) lying northwest of Barbados and almost due north of St. Vincent, came in lasting British possession in 1803. It has two harbors, Old Fort Bay, one of the most beautiful anchorages in the Caribbean Sea, and one still better, protected even from hurricanes, the harbor of Port Castries (1600 metres long, 600 metres wide, and very deep) in the middle of the west coast. We cannot let slip this opportunity to emphasize, that St. Lucia, in addition, possesses an excellent roadstead where whole fleets can rendezvous. It lies in the calm sea in front of Gros Islet Bay and extends in all directions with a radius of $3\frac{1}{2}$ kilometres and a depth of 40 metres. The capital, Castries (7000 inhabitants), rises in the inner recess of the bay of the same name, and possesses a coal depot. Town and harbor are defended by Fort Charlotte and two batteries, La Vigie and Tapion. It has been proposed, so rumor has it, to transfer the headquarters of the British West Indies from Barbados to Castries.

England thus possesses in the favorably situated St. Lucia, where, as in Trinidad, French blood predominates, a splendid maritime base, a lookout toward the seas, and a post of observation towards the neighborhood of the Third Republic in the island of Martinique.

The Island of Dominica, British since 1783 (750 square kilometres and 30,000 inhabitants), has in Port Roseau and Prince Rupert's Bay insecure, poor roadsteads with high seas.

It was on the 12th of April, 1782, in the memorable fight near Dominica and Guadeloupe, that Britannia's supremacy over the seas was established. Lord Sandwich dismissed Admiral Rodney from the home islands with the words: "The fate of the empire rests in your hands." Rodney did not disappoint the hopes reposed in him.

We now turn to an island favored by its central location in the northern group of the Antilles; it is Antigua (279 square kilometres, with 35,999 souls). The capital, St. Johns or Johnstown (19,000 inhabitants), has a shallow harbor (4 metres of water) which, though spacious, is exposed to hurricanes and tidal waves, and whose entrance is closed by Forts James

and Goathill. In the middle of the south coast of the island a group of extinct craters encircles English Harbor, a sheet of water 9 metres deep, completely protected from winds, tides and hurricanes, but limited in extent and tortuous. The entrance, which is but 180 metres wide, is guarded on one side by Fort Charlotte and on the other by Fort Barclay.

We conclude the examination of the West Indian colonies of Great Britain, acquired in such various ways, by that of the Bahama Islands. The most important harbor is that of New Providence on the Island of Nassau, with a depth of 5 metres and protected by Hog Island.

The sole remnants of the former boundless Spanish-American possessions in the West Indies are Cuba and Porto Rico. Her American possessions became a curse to Spain, for her soldiers, grown up in the conflict with the Moors, did not know how to beat the sword into a plowshare, the spear into a pruning hook. Thus the discovery of America and the thirst for gold entailed the material and moral decline of the kingdom, and at the end of this period Spain had become not only depopulated and a desert, but had lost all power for intellectual aspirations.

The Germanic race understood how to impart to the New World liberty, and, with liberty, science; gifts of higher value than all the treasures of Montezuma and the richest yield of the silver mines.

Cuba, in constant possession of the Spaniards, with the exception of a short period in 1762, is as rich as beautiful, and an island favorably situated in every respect (118,832 square kilometres and 1,631,687 inhabitants, counting adjacent islands). If proof were required, her many epithets, "Pearl of the World," "Queen of the Antilles," "Gem of the American Waters," "Key of the Gulf," "Bulwark of the World," would furnish that proof. Columbus, who discovered Cuba in 1492, exclaimed enthusiastically on beholding the island: "This is the most beautiful land human eye ever beheld." And he spoke truly, for even the magnificence of the Mediterranean and the splendor of the Italian sky would pale before the glistening waves in whose bosom the rays of the tropical sun and the radiant stars are reflected. The significant title of "La siempre fiel," the island earned by its declaration of war against France, when the Corsican conqueror had forced a foreign king upon the desperately struggling mother country. Though Cuba is to-day still officially entitled to this honorable appellation, the name has a melancholy collateral significance. Prematurely have the tropics matured a fruit which is almost ready to drop; for the Cuban misses no opportunity to show his dislike against everything taken over from the Spaniards. In name, language, religion, race, the island is Spanish soil, but not in heart. Nevertheless, at the time of the last great insurrection in Cuba, we heard in Madrid, in response to "Cuba for the Cubans," the popular cry: "May Spain perish rather than lose Cuba." Merely as a point of honor, and we know the old Castilian pride, Spain will strain every nerve to retain her West Indian possessions.

Although the island is liberally endowed with excellent harbors and bays, yet all its strength, all its energy, are concentrated in one point, the harbor of Havana, situated about the middle of the northwest coast. It is spacious, deep, and protected against the forces of the elements. On a

peninsula to the south of this wonderful anchorage lies Cuba's capital and the residence of the governor, San Cristobal de la Havana, with 250,000 inhabitants, *i. e.*, one-sixth of the whole population of the island. On the northern side of the harbor is a floating dock capable of receiving the heaviest armor-clads; in the southern corner lies the great naval arsenal; a well-supplied coal depot provides fuel for steamers.

As nature has secured the harbor as much as possible against the forces of nature, so has the skill of the engineer protected it against hostile attacks. In saying "as much as possible," we meant to point to the fury of West Indian hurricanes, from which neither the best harbors nor the most massive anchors or hawsers give safety. In his work "From the Life of Nature and Nations," Von Scherzer reports one of the most terrible hurricanes of recent times, October 10 to 11, 1846, which concentrated its greatest force at and about Havana. No less than 216 vessels, among them several men-of-war of the French West Indian squadron, were wrecked in this harbor. Though the harbor is well protected, yet the force of the hurricane raised waves 20 feet high; 5051 houses were destroyed or damaged, and 1872 lost their tile roofs; 114 persons perished under the ruins. The entrance to the harbor, which, at its narrowest point, is 340 metres wide, is protected on the north, in the first place, by Castillo de los Santos Reyes del Morro, crowning a rock and visible at a great distance. This work was built in 1589 and has since been repeatedly enlarged; it requires a garrison of 800 men. In the second place comes the Castillo de la Cabana, which is of recent origin, closed toward the land by three bastions, and accommodates 4000 men. Opposite these fortifications lies the Castillo de la Punta, contemporaneous with the Morro. In the southwest corner of the harbor basin rises at a high elevation the Castillo de Atares, built by Governor de Riela in 1763, and commanding town and harbor. The Castillo del Principe in the west of Havana terminates the Champ de Mars—Paseo Militar—which is much used as a promenade. To the east of Castillo de la Cabana, the small fort of San Diego rises on a hill 33 metres high, and 4 kilometres to the southeast appears the tower of Cojimar. 660 guns form the armament of these and five other works. These data leave no doubt that the Iberian kingdom has fully appreciated the importance of the parcel of earth that fell to its lot, with Havana as focus. But, notwithstanding the massiveness of the works commanding the city and harbor, we must state here, that the unprotected masonry work offers too large a target to modern artillery to afford successful resistance.

It is to the situation of the city, in a more extended sense, that Havana owes her extraordinary advantages among the localities of the earth, more, even, than to the splendid harbor, or its position, easily defended because easily separated from the rest of the island. The place is situated in the centre of the New World and of the American Mediterranean. Here the great maritime routes intersect which lead from the circumference of the Mexican Gulf and a part of the Caribbean Sea to the eastern exits, or from them to the coasts of the continent. Northwest of Havana and 1000 kilometres distant, the Delta of the Mississippi opens like a spacious gate to the most populous states of the Union. The Spanish-American city (Havana)

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is the northern advanced post of the Latin continent, although, from a commercial point of view, it comes nearer being a North American emporium of commerce. We now understand the Spanish expression "*Clave de Nuevo Mundo*," *i. e.*, "Key to the New World," and have an explanation for the key in the escutcheon of a city which will ever occupy a prominent place among the commercial cities of the world, and which, notwithstanding the obstacles thrown in the way of Havana's development by French and English corsairs, political and administrative measures, has become so great and gained such commercial-political importance, that even jealous Great Britain can boast of no place among the Antilles which could rival the Cuban metropolis. Yet there would be no Havana but for the Gulf Stream.

What has been stated of the city applies more or less to the island on which it is situated, and the high strategic importance of the place extends to all Cuba, the long West Indian rampart.

San Juan Baptista de Porto Rico, the smallest of the four Greater Antilles (with adjoining islands, 9314 square kilometres and 806,703 inhabitants), was taken possession of by Spain in 1509. The capital, San Juan (24,000 souls), does not lie on the island itself, but on a block of rock, which rises in a large bay off the north coast and is connected with Porto Rico by a bridge. The harbor to the southeast of this place, with its narrow canal-like entrance, large lagoons and shoals, forms a maze of land and water which will ever render approach difficult. Batteries on the so-called Pantilla, the castles Princesa, Albano, and San Cristobal, encircle the city in the north and east. The sheet of water in front of the channel, and the channel itself, are under the guns of Fort Cannelo, Castel San Felipe del Morro (on the westernmost point) and Fort San Antonio.

Between the two Spanish possessions just named, lies the Island of Haiti (77,254 square kilometres, with 1,472,000 inhabitants) which was discovered by Columbus on December 6, 1492, and was called by him Hispaniola or Little Spain. Delighted with her glorious nature and her riches, he founded on this island the first Spanish colony and thus she became the cradle of Spanish dominion and Spanish-Catholic civilization in America, but also the cradle of the most revolting kind of slavery the world has ever known. The history of the island presents an unusually touching picture. Possessed by Spain for 200 years, ravaged by French and English buccaneers and filibusters at a time when no distinction was made between piracy and war, the island was divided by the peace of Ryswick between France and Spain, the latter ceding the western half. This partition has become the basis of the two independent republics, existing to-day, the negro republic of Haiti and the mulatto republic of San Domingo. A further point of difference between this island and all the others of the West Indian archipelago is, that, while the latter have been mere bones of contention between European states, and are to this day dependencies of the same and lack a history of their own, Haiti has, since the French Revolution, been the first to become independent and has history of her own; a history, it is true, which tells of atrocities and of bloodshed, and by

which this magnificent creation of God has become stunted and spoiled. But let us return to our examination.

To the west of Haiti a wide gulf opens between Cap à Fou and Faux Cap, which toward the southeast forms a deep bay, divided by the island of Gonaïve, in whose innermost recess spreads out, not unlike a chessboard, the capital, Port au Prince, now officially called Port Republicain (61,000 inhabitants). The inner harbor, a small, well-protected basin, has 8 metres of water. Fort Alexander, situated to the east of the place at an elevation of 130 metres, commands the harbor and also covers it on the land side. Three kilometres to the west of Port au Prince, on a low shore, lies Fort Bizoton, built square, but now in bad repair. Lastly, the water-battery, built on a reef rising to the northwest of and close to the city and called Fort Islet, protects the inner harbor. Other works constructed along the coast are more or less dilapidated.

San Domingo (20,000 inhabitants), the capital of the mulatto republic from which the latter takes its name, rises on a rocky ledge of the south coast and was once the centre of Hispaniola. It is the oldest of all existing cities founded by Europeans in the western hemisphere. The harbor, poorly protected against the elements, lies in front of the mouth of the Ozama River, on whose right bank the city has grown up. The fortifications of San Domingo are on Vauban's system and in a good state of preservation. Fort San Jeronimo, situated $2\frac{1}{2}$ kilometres west of the town, protects it from the land side. Like Havana, San Domingo claims to possess the mortal remains of Columbus. Sepulchral monuments of the great discoverer are to be found in the cathedrals of both cities, with inscriptions almost alike, and under them the words: "For Castile, for Leon, Colon found a new world." On his deathbed Columbus expressed a desire to have his last resting-place in the bosom of evergreen Haiti.

Between Porto Rico and the northern Lesser Antilles, the Virgin Isles form the connecting link; they have belonged to Denmark since 1733. In this group, numbering nearly 100 islets (with a population of 14,500 souls) the island of St. Thomas is more particularly interesting (86 square kilometres, with 13,400 inhabitants). It once played a great rôle in commercial affairs, and still plays it, though only partially, as the principal station of the West Indian steamers. The harbor on the south coast of this favorably situated island owes its importance to its protection from the prevailing winds, and to the fact that entering and leaving port offer no difficulties. The almost circular basin is, however, limited in space and has little depth. The capital, Charlotte Amalie (9000 inhabitants), is built on three hills of conical form. In front of the centre of the city, Fort St. Christian, with a strong water-battery, projects into the harbor. The place is provided with docks and a coaling station.

By the side of the British colors, the French tricolor is conspicuous far away. To the north of Dominica it floats on the island of Guadeloupe and the neighboring islands of Desirade, Petite Terre, Marie Galante, and on the group of Les Saintes, and to the south of Dominica on Martinique.

Guadeloupe (1513 square kilometres, with 136,000 inhabitants), a French dependency since 1635, is a double island—Grand Terre in the east and

Basse Terre in the west—divided by a narrow canal, called Salee River, running $6\frac{1}{2}$ kilometres north and south. At the point on the southern side where the two islands join, lies the bay of Point à Pitre, barricaded by numerous islets, reefs and shoals. Large vessels can enter this bay, which is to be named among the most beautiful of the Antilles, only under the guidance of a local pilot, and with his assistance at night also, owing to the splendid illumination.

Next to Guadeloupe, the group of Les Saintes claims our attention from maritime considerations. The eastern, largest island, Terre d'en Haut, is divided from the western by the South Pass, a channel 900 metres wide and 36 deep. On the west side of Terre d'en Haut lies the town of the same name on a bay, which has 28 metres of water and is protected from the encroachments of the sea by Cabrit island. To its south, Fort Louis crowns Sable Point at an elevation of 90 metres and commands the town in connection with Fort Napoleon, rising on a hill to the north. A spacious roadstead with 26 metres of water stretches between the south-west side of Cabrit and the northwestern promontory of Terre d'en Haut.

Martinique, the westernmost French dependency among the Antilles (988 square kilometres, with 177,000 inhabitants) and called by her possessors the "Pearl of the Antilles," is particularly important on account of her nautic and strategic advantages. Fort de France—the name is significant—the spacious anchorage on whose northern side the city of the same name is built (15,600 souls), covers a space of 84 square kilometres and has a depth of as much as 61 metres. The entrance, though broad, requires the services of a pilot, owing to the sinuous channel. The bay is so well protected against breakers and the northeastern trade-winds by its situation to the southwest of the island and the configuration of the encircling coast, that it may be called not only one of the most beautiful and spacious in the Antilles, but one of the best on our planet; the aspect reminds one of Brest. The anchorage for war vessels is south of the city. The safety of the entrance is watched over in the first place by a fort, Ilet à Ramiers, on the island of the same name 6 kilometres southwest of the city, and Fort Louis, which rises south of and close to the city on a narrow, volcanic peninsula rising abruptly from the water to a considerable height. The city as well as the basin is commanded by Fort Bourbon, now called Dessaix, which crowns a hill north of and near the place. It appears to us doubtful whether these works, built long ago, could successfully resist the heavy ordnance of an armor-clad fleet. Should this be the case and should the terrain, which is favorable for the defense of city and harbor, not be appropriately utilized before the outbreak of warlike complications in the Antilles, the city would not only be in danger, but also the coal depot, the wharves, the various establishments of the navy and the Compagnie Transatlantique. As Fort de France forms the military focus, so the commercial interests gravitate toward St. Pierre (26,000 inhabitants), situated amphitheatre-like, in the northwest of the island on a sandy shore and along the slopes of the Pelee Mountain, notwithstanding that the crescent-shaped roadstead in front of the city is exposed, especially in winter, to dangerous

west winds. The south and east coasts of the island are rich in protected anchorages.

Lastly the Dutch possessions lie beyond the crescent above depicted; they are situated along the north coast of South America. Of the so-called Leeward Islands they embrace three: Curaçao, Oruba and Buen Ayre (930 square kilometres, with 34,000 inhabitants). Though small in extent and a waterless rock, Curaçao is important not alone on account of its location but because the island offers unusually fine harbors. It makes, indeed, a singular impression to see great steamers move freely between the streets of the beautiful, Hollandish, clean Willemstad.

IV.

In turning now to the examination of the terra firma encompassing this basin, we first name the following ports on the coast of South America: La Guayra, the water-gate of Caracas, Venezuela's capital; farther to the west, Cartagena, the best anchorage in Colombia, at least 30 metres deep, and consisting of three basins, with Forts Pastellilo, San Fernando and San José.

On the American isthmus, Aspinwall or Colon, situated at the Atlantic terminus of the Panama railroad and possessing a poor roadstead which during the work on the Panama Canal acquired some importance, will soon be shrouded in oblivion, and Greytown or San Juan will take its place. This town, which formerly belonged to the British, but was given up on account of its gradually filling with sand, lies at the mouth of the San Juan River, the eastern outlet of the Nicaragua Canal. A recently constructed mole, 1300 metres long, now protects the harbor.

At Belize, the seat of the British government in Honduras, vessels find from 3 to 12 metres of water, while mangrove islands and reefs protect it against eastern winds. The entrance is commanded by a low-lying fort.

On the east coast of Mexico, hovered over by the shade of Maximilian, there is but one historical city, but one gate, through which pass the commercial communications and political relations of the country to the outer world. This is Vera Cruz, situated in a most unhealthy locality, the breeding place of yellow fever, and characterized by its name "*Ciudad de los Muertos*" (City of the Dead). The key to the gate is kept in the decaying fortress of San Juan de Ulloa, rising on the commanding rocky reef de la Gallega to the northeast of the city. Despite its fortifications, the city has, inside of thirty years, thrice been taken by hostile fleets: in 1837 by the French under Prince Joinville, in 1847 by the North Americans, and in 1862 at the beginning of the last French invasion. For the past 3 years extensive harbor improvements have been under way. Vera Cruz itself is enclosed by bastions, towers and crenelated walls. To the west of the city Fort Concepcion lies along the shore near the English mole, and to the east Fort Santiago.

Upon entering the southern territories of the United States we are at once made to realize the power and life of this great union of states. We stay our steps at the narrow island of Galveston, which is 50 kilometres long and 24 wide, and lies in front of a bay penetrating twice the latter dis-

tance into the mainland. The city, situated in the northeastern part of the island (48,000 inhabitants), and the harbor—the best in Texas—bear the same name. The anchorage possesses docks, quays and a coal depot. Improvements are now under way to deepen the anchorage as well as the entrance between Fort Point on the island and Bolivar Point on the peninsula of the same name. Earthworks are also being erected.

The Delta of the Mississippi now claims our attention; for this river which here pours its floods into the Gulf, is, as no other, the river of the Union and destined to influence in the future the Mexican Gulf more and more in commercial, political and military affairs. Its five branches are called Southwest, South, Southeast, Northeast and Loutre Pass. At the mouth of the deepest of these, the South Pass (12 metres), are the dams constructed by Eads for improving the entrance. 192 kilometres north of this point New Orleans extends for several kilometres on the left bank of the river, and between the latter and the landlocked Lake Pontchartrain. It was founded in 1717 by French colonists and has, despite its unhealthy situation, become a metropolis, also called Crescent City in the double sense of the word, *i. e.*, a growing and at the same time crescent-shaped city. We at once perceive the causes of her flourishing condition when we contemplate the location of this place on the great water artery, her back firmly resting upon the Union with which she is connected by a thousand ties, while in front lies the West Indian Island world, rich in products. If New Orleans continues to grow as heretofore, and if, in consequence of the event preparing on the isthmus, the Union gravitates more toward the Gulf of Mexico and the Caribbean Sea, then this city, even now the most populous in the South, may surpass New York in the course of decades. The commercial and warlike floating material finds in New Orleans, where the Mississippi is 700 metres wide, all manner of stores; provisions, coal, floating and dry docks, etc. This emporium is protected against the attack of hostile fleets by Forts Jackson and St. Philip rising at Plaquemine Bend, 112 kilometres below the city, on either bank of the river. The Delta and neighboring waters are guarded by forts on Ship Island, Mississippi Sound, Pike, Rigolets, and Macomb on the Chef Menteur Pass, the channel linking Pontchartrain to Lake Borgne and Gulf of Mexico; lastly, by Battery Bienvenue and Tower of Proctorsville on Borgne Lake. Near the western mouth of the Mississippi, on a low island, lie Forts Livingston and Lafitte which command the Bay of Barataria, penetrating 32 kilometres into the continent. This bay communicates with the Mississippi by a canal 16 kilometres long, terminating above New Orleans.

Proceeding further east we encounter Mobile (47,000 inhabitants) in the northwestern recess of a bay, 11 to 32 kilometres wide, 48 kilometres long, and on the whole shallow, through which a channel 7 metres deep leads to the city. Next to New Orleans, Mobile is the greatest cotton market in the Union, has a coal depot, and in Gulf City Foundry and Home City Foundry, establishments for the repair of steamers. The entrance to the bay, which is 4 kilometres wide, is guarded by Fort Gaines on Dauphin Island in connection with Fort Morgan on the mainland.

Eighty kilometres eastward, we find the mouth of a bay 42 kilometres

long and $4\frac{1}{2}$ to 8 kilometres wide. On it lies the city of Pensacola, whose arsenal, marine hospital, dry and floating docks are protected by Forts Pickens, San Carlos de Barrancas and a redoubt. The maritime importance of the place is increased by the fact that another bay, that of Saint Joseph, opening at $85^{\circ} 30'$ longitude west from Greenwich, can be entered in safety even in stormy weather, owing to favorable horizontal and vertical conditions.

The Florida peninsula which closes the Mexican Gulf on the east has no noteworthy harbor on the western coast. The Florida Keys claim, therefore, the more attention. They comprise that string of islands, shoals and reefs, which extends from the southern point of the peninsula for 350 kilometres into the Mexican Gulf and possess but one passage at Key West, with 4 metres of water. This island has a harbor with 10 metres of water and is defended by Fort Taylor, batteries and two martello towers. Lastly the islands of Dry Tortugas, possessing a deep, spacious anchorage, defended by Fort Jefferson on Garden Key, form the western advanced post of the Florida Keys.

As an oasis in the desert may occupy an historical position owing to the roads crossing there, so may a bare island in the waste of the sea, where ships' furrows intersect each other, occupy a high commercial, political and naval strategic position. Like such a point the Bermudas, or Somers Islands, rise in the North Atlantic on the southern flank of the greatest of all natural water courses, the Gulf Stream. Although not a part of the West Indies, they must be considered here on account of their position and their peculiar strategic value. This archipelago of coral reefs, $30^{\circ} 25'$ northern latitude and $64^{\circ} 20'$ longitude west from Greenwich, rises abruptly out of a depth of 5000 metres, and forms a firm circular structure of 600 square kilometres. There are 365 islands and reefs, of which, however, the five largest only are inhabited; 54 only emerge from the water, with oval back, on one of which is Mount Gibbs, 110 metres high. The low location of the islands renders them visible only on close approach, and explains how an English midshipman failed in his practical examination, because he had not been able to find the archipelago, and on returning to Plymouth asserted, that three times had he sailed over the place, where, according to the charts, the island should have been. Of the Bermudas, Shakespeare says ("Tempest," act 1, scene 2):

"Where once
Thou call'dst me up at midnight to fetch dew
From the still-vex'd Bermoothes,"

And Admiral Marvel sings:

"Where the remote Bermudas ride
In the ocean's bosom."

Though irregularly formed and arbitrarily intermixed, the coral rocks rising above the sea, have created a strong, natural naval citadel. Like an irrefragable iron ring, bank on bank and reef on reef lie around the larger islands, forming natural bastions and advanced works, represented, for instance, by the north rocks in the northern region and a double zone of wonderfully diver-

sified and densely closed formations in the southern region. Since but few narrow, tortuous channels pierce this natural rampart, the latter quite encircles an inner sea with an average depth of 15 to 25 metres, protecting it at the same time against breakers which beat wildly and incessantly from without. Although the water is so limpid that the subaqueous labyrinth of coral formations can be plainly observed from shipboard, it is only a pilot thoroughly familiar with the locality that can guide the vessels through the few channels connecting the Atlantic with the interior basin. The most important islands of the archipelago bear the following names: St. George, St. David, Hamilton, Somerset, and Ireland. St. George, the northernmost island, possesses in Murray Anchorage to its west and north, a good harbor free from shoals, with 16 to 18 metres of water and a tough clay bottom, which is of great advantage during the northwest winter gales. The harbor is at the same time near the open sea and the narrows, *i. e.*, the only channel for large vessels. Numerous casemated batteries and Fort Cunningham (elevation 21 metres) on Paget Island cover the same. On the northernmost point of St. George lies Fort Catherine on the steep shore, and, on an elevation between it and the city of St. George, Fort Victoria. The island possesses large cranes, docks, and workshops for the repair of ships. St. David is the easternmost and Hamilton or Bermuda the largest island of the group. The shores of the latter are as irregular as its surface, which, in the south, bears the previously mentioned Gibbs Mountain. Hamilton, the capital (2000 inhabitants) and to-day the seat of government, lies at about the middle of the island on the north side of a commodious, well-protected harbor, which, however, has but 3 or 4 metres of water. On a plateau in the middle of the island are the headquarters of the garrison. On this very important position, which commands the city, and whence the eye surveys the entire surface of the enclosed basin, there are three forts of latest construction and armed with the heaviest ordnance. Like St. David, the island of Somerset is of little importance, while Ireland, the last one to be examined by us, and situated to the northwest, claims our full attention, since here are the great naval arsenal with other important naval establishments, the provision storehouses, marine hospital, coal depot, etc. To the south of the island a crescent-shaped mole of strong masonry closes the military harbor. The latter is not spacious, but has 14 to 16 metres of water over a marly bottom and is well protected by a monstrous breakwater. Floating and dry docks accommodate the largest vessels. Spring water, it is true, cannot be had. Condensers, which render sea-water drinkable, furnish the water for the garrison and inhabitants (an intelligent, mixed race of whites and negroes). The climatic conditions are excellent.

When we further state, that bridges, ferries, roads, etc., connect the islands in such a manner as to make them almost one island, that telegraphs and telephones give instantaneous communication, that four signal stations watch the outer sea, and that all commanding points are strongly fortified, we may estimate, without considering submarine defense, the power of resistance of the Bermudas, which Sir Charles Dilke calls over-fortified. That such a position in the ocean would not escape the sharp eye of Great Britain is self-evident, and as early as the beginning of the 17th century Albion

took possession. It serves her in three capacities; as a colony, a prison (for confinement of about 1500 prisoners) and a fortress.

V.

Geographically the West Indies belong to America alone; this no one will gainsay. The political partition is, therefore, the more unnatural. Of all the islands, but one, Haiti, has gained independence; whether for her own good is doubtful. All the other territories of this blessed island world are things of value and bones of contention in the power of European states. The kingdom of Spain has saved Cuba and Porto Rico from the shipwreck of time; the French tricolor casts its shadow over Martinique, Guadeloupe and the neighboring islands; Denmark owns the Virgin Isles; Holland possesses islands in the middle of the southern Caribbean Sea; lastly Britannia's proud banner floats, in the middle of the basin, over Jamaica, the Cayman Islands, over many points of the Lesser Antilles, the sea gates of the West Indies, over the chain of the Bahamas and on the mainland itself. The continental frame is formed in the north by the long coast-line, where the star spangled banner is conspicuous; to it is joined Mexico, which encircles the gulf of the same name on the west, and which, on the eastern coast of Yucatan, projects beyond and into the Caribbean Sea. In the west the waves of the Antilles sea beat on Mexican shores, on those of British Honduras and the republics of Guatemala, Honduras Nicaragua, and Costa Rica on the isthmus. Lastly Colombia and Venezuela close the continental ring.

This political division of the West Indies among European nations has naturally produced its effects on the population. The aborigines, as mentioned in connection with Haiti, have been exterminated. In their places negroes were imported as early as 1517, whose toil rendered the cultivation of plantations profitable. By their side the number of white settlers gradually increased and from the mixing of the two races sprang a third, formed by the crossing of negro blood with that of the Spaniard and Frenchman. Yet the negro race is to this day predominating in the archipelago, while on the isthmian continent Indian tribes, and the half-breeds sprung from them, preponderate.

The climatic conditions seem to have constituted the West Indies the inalienable heirloom of the negro. In the whites is manifested the power of European culture and of gold, and in the negroes and half breeds the power inherent in mass. While Spaniards and Frenchmen have succeeded, so far as permitted by the distance, in inoculating in their colonies Spanish and French sentiments, so that Martinique and Guadeloupe appear like portions of French soil, Great Britain cannot boast of like favorable results, for not only have the sympathies of Trinidad, Dominica, St. Lucia and Grenada never been with England, but even in Jamaica and Barbados English sentiments seem to be on the decline. Since the negro races are incapable of wielding government, there remains but one question in the West Indies: To whose influences will the population submit? will it continue in the future to accept the law from the Old World, or will North America seize the power?

The railways traversing the isthmus have but partially realized the dream of Charles V.; its realization is reserved for the Nicaragua Canal, the water artery which is destined to call into life the only imaginable, uninterrupted, ideal, world-route, and to render possible the circumnavigation of the globe in the fullest sense of the word. As compared with the Suez route, which shortens the way from the middle of eastern America and from Europe to India by 7500 kilometres, the Nicaragua Canal will save 7500 to 11,000 kilometres on the high routes to the shores of eastern India. It will not only extend commerce greatly, but will also direct it in other paths. The great importance of the West Indies to the history of civilization lies in the fact, that, when once they are brought into immediate interoceanic communication with the greatest of the world's seas, they will lie in the centre of the great oceans whose waters beat against the oldest as well as the youngest civilized countries of the world.

It is not surprising that the Union, where according to Macaulay "everything is sail and nothing is anchor," is even now endeavoring to gain the preponderance in the West Indian Sea. That the endeavor is crowned with success is proved by the reciprocal treaty concluded with Spain in 1891 regarding the commerce of the United States with Cuba and Porto Rico. The West Indies will be unable to withstand the economical supremacy of the powerfully developed Union, and will be compelled to submit to the law dictated by her. This would be a translation of the Monroe Doctrine into the commercial-political.

As in Russia the alleged testament of Peter the Great forms the guiding rule in the external politics of the Czar's empire, so for the American Union, does President Monroe's message to Congress on the 23d of December, 1823. What the Baltic and the straits between Europe and Asia are for Russia, the basin, into which the Mississippi and Rio Grande del Norte pour their waters, is for North America. The West Indian question reaches to the tap-root of the Union, whose enormous, geographically united, and rounded territory is becoming too limited even now for her inhabitants. They cast their glances beyond, and more and more emphasize the words, "America for the Americans!" As the individual there is given the fullest possible play, so the community is fitted for competition, for the highest achievements in civilization and national economy; and as in the individual, so in the state there throbs the love and joy of work, of struggling and battling for high aims, for the domination of the world. This spirit, which pries into the future and finds no time to delve in the past, directs the eye to the West Indies, the connecting link for easy oceanic communication between the East and West, and to the isthmus, where the canal is to be created. We state here expressly, that we neither cavil at the treaties and negotiations between the United States and the Central American republics, which preceded work on the canal, nor at the diplomatic notes exchanged with England regarding the Mosquito coast; but we cannot refrain from calling attention to a remark of President Hayes, that "the canal as an American canal must remain under American control," and to the inaugural message of President Harrison in which he declared "that it would be incompatible with our peace and safety, if the shorter

water route between our eastern and western coasts were controlled by any European government." The foregoing frankly expresses the intention of the Union to acknowledge no master but herself over the Nicaragua Canal, and as in Central America, in days gone by, the battle was fought out which gave to Britannia the supremacy over the seas as against Spain and France; so in days more or less remote the unavoidable conflict between the ruler of the seas and the United States will arise in the West Indies, and every cut of the spade on the Nicaragua Canal will hasten its outbreak. For though the future artificial water-way between the seas will be open to any vessel in time of peace; the real question is, not who holds the outer gates, but who, particularly in war, commands the approaches. This involves the maritime routes starting from and leading to Greytown, the eastern mouth of the canal, *i. e.*, the highways of the sea which connect Central America with the older civilized territories of America and the still older ones of the eastern hemisphere. Here we have reached the focus, and it will be at once apparent to any politician, any strategist, that we have mainly to consider two powers; England, the ruler of the seas, and the United States, the builder and custodian of the canal, that narrow, but important connecting tie and new strategic line for the United States.

The above military statistical review has been given for the purpose of explaining the military and maritime chances on the one side or the other. Based upon it we will now enter upon a strategic examination.

VI.

In reconnoitring the terrain we perceive at first glance, that the Gulf of Mexico, encircled by American states, is an American basin, and that the nautically favored and strong Havana and the North American emporium on the Mississippi, form the foci of the basin. On the other hand, the Caribbean Sea represents a British lake, because England knew how to possess herself of the dominating positions in and around it. For is not Jamaica, the third of the Greater Antilles, British? Does not Jamaica, situated in the strategic centre, bar the Windward Passage from the south? does it not flank the Channel of Yucatan, the Mona Passage and all maritime routes passing through the Lesser Antilles and leading to Greytown? The island forms, in addition, the strong eastern pillar of a high strategic line, which extends beyond the Cayman Islands to British Honduras. As this line intersects at right angles all maritime routes coming from the Channel of Yucatan, so the communications of Jamaica—considered in this instance as the western pillar—with Antigua, Barbados and Trinidad, intersect all routes leading westward through the Caribbean Sea. In the Lesser Antilles, Great Britain possesses harbors and islands, in part strongly fortified, important through their strategic situation, which might forbid the passage to the North American squadrons, before or after Jamaica has thrown her weight into the scales. As the latter communicates to the east and southeast with the Lesser Antilles, so it communicates directly with the Bahamas by the Windward Passage and indirectly by the Yucatan Channel. The chain of the Bahamas forms an easily defended, great sea camp, which can stop at any time the communication between the

Atlantic coast and the Mexican Gulf. Starting from its difficult waters, the blockade runners of the Southern States succeeded during the War of the Rebellion in supplying the southern ports with munitions of war.

Although Great Britain has bound herself by the Clayton-Bulwer treaty, among other things, not to control Central America, yet by her position in the West Indies she actually does control the Nicaragua Canal. Recognizing this fact, President Garfield issued a dispatch signed by Mr. Blaine, which reads as follows: "The immense development of the Union on the Pacific coast places new obligations upon us and calls for a revision of the treaties, the more, as Great Britain possesses great maritime establishments in the West Indies which we do not have, and which would give England the preponderance in war. It is therefore necessary to repudiate our obligation not to fortify the canal, for should we adhere to it, we should be renouncing our rightful, long-sustained claims regarding Central America."

The British possessions in the West Indies, however, are not only supported by the strong coral fortress in the Atlantic, which, in a sense, guards the eastern key to Central America, but the offensive power of the Bermudas will manifest itself in case of warlike complications, perhaps decisively, from New Providence to Jamaica and as far as Trinidad. Having shown above how the favor of nature and the skill of the engineer have rendered impregnable this isolated archipelago in the Atlantic Ocean, we will now examine its situation. We find that the distance to New Providence from the Bermudas amounts to 1440, to Jamaica, 1744, to Antigua, 1717, and to Barbados, 2190 kilometres; while the important North American places of Charleston, Washington and New York are distant 1429, 1146 and 1253 kilometres respectively, and the English Canadian stronghold of Halifax can be reached by clearing 1260 kilometres. If we enlarge the horizon, we find that the intervening space to the mother islands in the North Sea is from 4990 to 5550 kilometres, and to the British naval fortress of Gibraltar, 3290 kilometres.

The central location of the Bermudas, almost equidistant from the Antilles, the eastern coast of the United States and Nova Scotia, gives them, with the great naval arsenal in the North Sea at their back, an exceptional importance, and demonstrates, that in no more favorable location than here could England have thrown out her western anchor. Impregnable, the archipelago here offers to the merchant marine, as well as to the floating war material, a refuge alike secure against hostile designs and the forces of the elements. Its offensive importance, however, far surpasses the defensive one; for situated in front of the centre of the eastern shores of the Union, having on its right flank the strong naval port of Halifax with which communication exists by cable, and on its left the great naval stronghold of the Bahamas, the Bermudas threaten not only the eastern shore of America, but stifle, so to speak, in the beginning, any attempt at the offensive on the sea, by rendering the concentration of separately operating hostile squadrons difficult. In these watery territories there is no place, besides the Bermudas, where the North American and West Indian squadrons of Great Britain can assemble, plan maritime operations and carry them out with secrecy and celerity. For the British, the archipelago thus forms a great

strategic pivot, provided with all maritime means and requisites, an outlook on the sea, and the most important key on the greatest maritime water course, the Gulf Stream. For from out the American Mediterranean, its birthplace, springs the Gulf Stream, the storm and weather king which impresses his unmistakable stamp on the entire northern Atlantic. Its sources lie in the Caribbean Sea, which rolls a large part of its waters through the Channel of Yucatan into the Mexican Gulf, in whose crescent-shaped basin the warm element coming from the south circulates before escaping forcibly through the comparatively narrow canal between Cuba and Florida, as well as through the narrow outlets between the Bahama Banks. For this singular, powerful movement of the sea no more significant term exists than that of "stream," whose original, firm banks are Florida on the one side and Cuba, the Bahama Banks and Bahama Islands on the other; and which in its course precipitately imbeds itself in the ocean, and, continuing in a north-easterly direction, spends itself but tardily. The moderating influence of the Gulf Stream makes itself felt even on the distant shores of Nova Zembla. The great northwestern knee or bend of the Gulf Stream lies, sharply defined, in the middle of the North Atlantic. If we emphasize here, that, in addition to the liquid element, the aerial phenomenon lends its strengthening support, it will be perceived that the principal routes of navigation between North America and Europe are strongly influenced by the West Indian waters. Hence travel on this great watery territory does not follow undefined paths or the caprice of accident, but is bound by a great, immutable law, which in wonderful orbit favors the passage to and fro between the continents. With the loss of the Bermudas, Great Britain would be in danger of losing her maritime supremacy in the western hemisphere. And that this danger is not impossible is shown by the fact that the Bermudas are dependent on supplies brought up by sea, and can remain British only as long as "Rule Britannia" shall resound over the waters.

Having outlined the British West Indian naval base; if we now imagine ourselves in the mother country and cast our glance to the southwest, surveying the wide expanse to the Nicaragua Canal, we perceive in the Bermudas an impregnable redoubt, in its front the far reaching strategic line of the Bahamas and Lesser Antilles, and lastly in Jamaica the strong outpost in the Caribbean Sea, whence the Nicaragua Canal, the future "gateway of the seas, the key of the earth," is dominated.

We should lay ourselves open to a well-founded charge of shortsightedness should we fail to cast a more searching glance on South America. While Trinidad commands the northern mouths of the Orinoco, Britannia has on the mainland, by diplomatic moves, far advanced the frontiers of Guiana from the Essequibo, the former frontier line, toward Venezuela; and, in the north, has declared the island of Barima British territory in a manner no less singular than arbitrary. This island commands—and this fact has so far almost entirely escaped non-British statesmen and strategists—the principal mouth of the Orinoco, Boca de Navios, so that the Delta of this favored, powerful river is gripped by England as with tongs. But when we learn that the great water artery of the Orinoco communicates with

the Amazon River by the Cassiquiari and Rio Negro, both of them navigable; when we consider, that from the Boca de Navios we not only can traverse by ship Venezuela, Colombia, Ecuador and half of Brazil, but can even reach the centre of Bolivia, no further reference is needed to demonstrate the commercial and political importance of the British position on the Orinoco Delta, notwithstanding the obstacles at Atures and Maypures, and it will be now understood, why we have named Trinidad as having the most important location among the Lesser Antilles. After protracted negotiations with Great Britain, Venezuela asked, on the strength of the Monroe Doctrine, the intervention of the United States in her favor. Since North America declined, England possesses to-day a preponderance in the Delta of the Orinoco, which she is in a position to open or close at will. German interests are here involved only to the extent of important commercial relations with Venezuela. Ciudad Bolivar (formerly called Angostura), the great emporium on the Orinoco, appears, as concerns commerce, almost as a German city.

Such is the position of the British in the West Indies and Central America. If we glance at the continental states, more particularly the United States, we will see that most of the important sea-towns of this country are safe at least from a *coup-de-main*, though they are not all protected from bombardment, and that but few of them could serve the enemy as a maritime base. According to the annual report of the U. S. Secretary of War, published in November, 1893, the work of re-fortifying the thirteen largest seaports will begin at an early date. We must bear in mind, that in so far as England is concerned, no landing, or subsequent operations based on it, need be feared. Aside from the defective organization of the British army, which would hardly admit of such operations, the Southern States are crossed and recrossed by a network of rivers and, we might almost say, strategic system of railways, so that the forces of the Union, transferred to the south, could shortly pass from the defensive to the offensive. This for the moment, it is true, would reach no farther than the monster guns of the seacoast fortifications, but not beyond, so long as the entrance into the Mexican Gulf through the Channel of Yucatan and the Old Bahama Channel remains open to England. For despite all her endeavors—we except the Florida Keys and the many other islands lying close to the mainland—the Union has not yet succeeded in acquiring a single maritime strategic point in the Gulf of Mexico or in the Caribbean Sea, where, as we have seen, nearly all great naval powers possess maritime points of support. Even if Havana should some day become the principal station of the American squadrons, the Union would from here, in connection with Key West, be able to command only the eastern, inner entrance to the Gulf, but not beyond, because on the north she would come within the sphere of the Bahamas in the first line, and in the second that of the Bermudas. But the Channel of Yucatan will, for reasons stated, remain under British control. As regards the Caribbean Sea, it is plain that American squadrons cannot force an entrance from the open Atlantic. The Bermudas on the left, the Bahamas on the right, forbid it. There is still another possibility: the forcible advance of American floating war material through the eastern outlet of

the completed Nicaragua Canal. This depends upon the strategic momentum in the Pacific of which we shall treat at an early date in a separate article. Let the statement here suffice, that the Golden Gate, from which the strength of San Francisco would have to be transferred to the Nicaragua Canal, can be reached within 80 or 90 hours from the strong British base in Columbia.

But, besides the United States and England, there are other powers in the West Indies which must be considered as perhaps decisive factors. The first of these is Spain. Should the United States acquire Cuba by cession or purchase, they would enter upon their supremacy in the Mexican Gulf; while the situation in the Caribbean Sea would also be changed, so that henceforth the splendid harbors on the southern coast of the island would come into favor. East of Cuba lies the island of Haiti, the centre of the West Indies, at once of great importance when allied to the Union. Here the United States attempted to get a foothold by an agreement with the republic of San Domingo, according to which the Bay of Samana, strategically important, or the Mole of St. Nicholas should be ceded to the United States as a coaling and fleet station. The first arrangements came to naught through the objections of European powers. Next to Spain—putting aside Denmark and Holland—France, the second in sea power, is to be considered. Although after embittered struggles, France has lost to England part of her possessions in the Antilles, Canada and East India, and with them the supremacy over the salt water, she has lately acquired positions, which seriously threaten England's maritime supremacy. French Indo-China with Siam, which has become a memento for England, menaces the British maritime highway, Singapore-Hongkong-Colombia. The pearl of the Indian Ocean, Madagascar, belongs to the Third Republic, and from Toulon and Biserta she threatens the great English East-Indian Route. Nor is it likely that for the sake of preserving her very old possessions in the West Indies, France would act the unconcerned spectator, should it come to any conflict there; and might not an alliance between the powerful American and the French Republics prove more dangerous to Albion, than a Russo-French alliance in the Mediterranean or the Pacific? Since Napoleon III. based his Mexican expedition on Martinique and Guadeloupe, this warlike event has proved what may be the result if the great naval power of France, which—be it incidentally but none the less emphatically stated—is also a great power on land, should join hands with the more and more aggressive United States in an alliance against England. The North American power on water and on land, which, though as yet little organized and disciplined, cannot be overestimated, would then manifest itself. The results of a system of filibustering are well known.

In our days, the turning point from the old epoch to the new, everything unites to favor what is in growth, and the ocean becomes more and more the link between mankind. Two oceans have been united by the Suez Canal; at no remote date another continent will be pierced and the middle Atlantic will be in inter-oceanic communication with the wide Pacific. Then when we travel westward to reach East India, every span of land and

every square metre of water of the West Indian land and water territories will possess commercial, political and military importance heretofore unsuspected. Greater battle will be waged in America for the isthmian canal than for the cut at Suez. It is then that more remote countries and inexhaustible resources will disclose themselves, and the West Indies will become the stage of the world, where higher problems, problems of lasting importance for the history of mankind, are to be solved. Here the teaching of strategy, that from the centre the circumference can be reached and dominated, will be exemplified. It will be seen that in this world there is no uncontested, eternal supremacy, and England will be compelled to defend here, as she is already doing in the Mediterranean basin, the sceptre of the dominion of the seas.

Lastly, we will point out two additional factors. England has in the West Indies, as has no other state, a network of coaling stations on soil belonging to her, and is thereby rendered superior in a naval war (which to-day is dependent on coal) to other powers to whom neutral coal depots are denied. These stations, it is true, are not all sufficiently fortified, and, in order to remain accessible to British vessels and not to fall into the enemy's hands, cannot dispense with effective defense. The latter is lacking—we know how poor in troops England is. And this defect is pointed out as the preponderance which France possesses. Now we can estimate the dangers which lurk in offensive French operations against islands which, though in British hands, are inhabited by a French-speaking and French-thinking population. The neglects with which England must charge herself as regards her army can no longer be remedied by resorting to universal liability to service; for if she be deficient in cadres to-day she will be lacking in landwehr after decades. As England does not possess a large army, the alpha and omega of her politics has heretofore lain in an overpowering fleet—heretofore, but not henceforth, since the events in Siam and in the Mediterranean. Great Britain could not now oppose to a united Russo-French fleet an equal number of war vessels. In addition to insufficient quantity, the quality of the British floating material leaves much to be desired as regards construction, speed, armament (a large number of battle-ships still carry muzzle-loaders), crews, etc. We quote British authorities, the Admirals Sir Thomas Symonds, Sir Phipps Hornby, Sir George Elliot, Richards, de Horsey, and Colomb, also Lord Roberts, Mr. Ashmead Bartlett, Mr. Arnold Foster, Sir Edward Reed, who have openly declared this to be the case.

After listening to English voices, it may not be amiss to invite attention to the chapter on "The English Fleet" of our work entitled "England's World Position," published in 1886, where we said, among other things, on page 112: "If we closely examine the British fleet and measure its strength, we no longer receive the imposing impression which the ruler of the seas produced upon the nations in days gone by. The tragic fate of slow but steady decay seems to be its destiny, which even now is casting its shadow, unless clear recognition and determined action avert this destiny."

As regards the United States, we must state here that its great development during the past years is manifested not only in an increased number of vessels, but also in the perfection of construction, armament and crew.

It is not very long since the Union depended upon foreign countries for construction and armament of vessels; to-day she is independent. According to the annual report of the Secretary of the Navy, the fleet of the United States already occupies the seventh place. In this document we read: "It is probable that the future will bring up a greater number of international questions, for whose arrangement the development of naval force is indispensable; hence we must build and maintain a strong navy to support our politics by its weight." As regards naval science we cannot refrain from remarking that in Captain Mahan, author of "The Influence of Sea Power on History and on the French Revolution," the United States possess the foremost writer in the world on naval strategy.

If the eastern question for England consists in the supremacy over southern Asia, then the western resolves itself into one of naval supremacy in the West Indies and the preservation of her Canadian Dominion.

THE CHINESE AND JAPANESE ARMIES.

(From the Army and Navy Gazette.)

THE CHINESE ARMY.

WAR having now been formally declared between China and Japan, the new Chinese army, on which Li Hung Chang and his countrymen have expended their money and their energy for nearly thirty years, is about to have the opportunity of showing its military value. That army has been critically examined during the last fifteen years by highly competent English and Russian officers to the full extent of the opportunities afforded them; and we owe to the published, and still more to the unpublished, reports of Capt. Gill, Col. Mark Bell, Mr. James, now Chief Commissioner of Scinde, and Col. Poutiata, a fairly complete and comprehensive description of the disciplined and modern-armed Chinese forces. But, if some of their conclusions are a little disparaging, it must be recollected that all these travellers saw only detached portions of the several bodies that make up the Chinese army.

Vast as are the numbers of the fighting men of China on paper, they bear but a very small proportion to the huge population of that empire. The old Chinese army, in its three divisions of Manchu, Mongol, and native Chinese, did not exceed the nominal strength of one million, and all the efforts of military reformers have been devoted to increasing the efficiency and not the size of that force. The Green Flag, or Luhying, corps still represents the bulk of the army, furnishing on paper a total of 650,000 men, scattered throughout the nineteen provinces, excluding the new province of Manchuria, of which the empire is composed. It is controlled by the local viceroys and governors, who may in some instances have attempted to improve its efficiency, but as a general rule this force has little or no military value. It has not been subjected to any regular discipline, its arms are ancient and useless, and even its paper strength is never attained during the brief period that it is subjected to an annual course of training. If there was any truth in the recent report that the provinces

were to call up 20,000 men apiece, it would mean that the viceroys and governors would be held responsible for that quota of the Green Flag army. But for a war with even such an opponent as the Japanese it is quite clear that the national army of the Green Flag will not do, and its value as a recruiting force for the trained regiments would only become important in the event of a protracted struggle. There are, moreover, grave reasons, from the point of view of the Chinese government, against giving this branch of its army any modern efficiency, for the slender, if at present sufficiently secure, hold on the provinces possessed by the central government might snap if ambitious viceroys and disaffected subjects controlled regular and well-armed troops. With these remarks we may now turn to what may be called the new regular army of China.

The main object of military reform in China has been the defense of the capital and the approaches thereto, the necessity for which was brought home to the Court by the Anglo-French expedition in 1860. When the Taeping rebellion was finally crushed, the Ever Victorious Army, with which the name of Gen. Gordon will always be identified, was disbanded, and the Viceroy Li Hung Chang took into his pay a considerable number of these disciplined and experienced soldiers, who had taken their part in a succession of remarkable achievements. When Li Hung Chang was transferred as viceroy from Kiangsi to Pechihli, he took with him these men as a sort of personal body-guard and with the avowed intention of organizing an army that would bear comparison with European troops, and that should render Peking secure against foreign insult and attack. He has been engaged on this task for nearly 25 years, and if he has not attained perfect success he has at least deserved it. At the commencement this force numbered about 18,000 men, composed partly of Gordon's old soldiers, partly of drafts from the Green Flag army raised by Tseng Kwofan for the siege of Nankin, and partly of Taeping prisoners, and it was known as the Shen-che Ying or divine mechanism army, which meant in plain language that it was armed with rifles. After the Franco-German War the viceroy took into his service several German officers, of whom Major von Henneken, whose name has of late been frequently mentioned, was perhaps the chief; and these officers devoted themselves with untiring energy and zeal to the conversion of what was not unpromising material into a regular army of the highest standard. The training of this force has been carried on with the greatest possible secrecy at Kalgan and other places, and the few regiments employed at Tienstin and in the Taku forts were only drawn from it after they had been subjected to a severe preliminary training. Of the main body no European officer except those serving with it has had any opportunity of forming an opinion, but it is known that the Black Flag army, as it is now called, of the Viceroy Li Hung Chang is divided into the three branches of infantry, cavalry and artillery, and that it numbers about 50,000 men with the colors. In addition to that total it is said that there are as many more reserve men who could be called up whenever required. The infantry are armed with Remingtons, the cavalry with Winchester repeating carbines, and the artillery have Krupp's 8-centimetre field-pieces. A report of one of the foreign officers attached to this force speaks

in the highest terms of the steadiness and efficiency of all arms on the parade-ground, and the physique of the men is described as magnificent and equal to the *élite* of European armies. The only fault found with the force by the writer is that too much care has been taken of it by the government, which has hesitated to employ this costly creation at any distance from the capital. In all the great expeditions for pacifying the empire in the west and the south this army has never been employed, and even during the war with France only two regiments were sent to the Tonkin frontier at the close of the campaign. But the reluctance is only to send them to a distance from the capital and during the French war 25,000 of these troops were concentrated at Port Arthur. A campaign in Korea would come within the range of their natural duties, and would furnish them with a favorable occasion for displaying their martial qualities and efficiency.

But it must not be supposed that the Black Flag army represents the only force in China to which the terms disciplined and well-armed can be applied. In Central Asia the garrison of the New Dominion has made considerable progress in military efficiency under the direction of its commander, Liu Kintang. Its numbers are probably inadequate for the defense of so vast a region as it has to guard, but the efficiency of the main force at Urumtsi, where an arsenal and depot of arms have been established, cannot be gainsaid. Throughout the New Dominion there are probably 30,000 well-disciplined troops and an equal number of irregular levies, but none of these could be prudently withdrawn for purposes of war on the coast. After Li Hung Chang's army, and scarcely inferior to it in strength and importance, come the two branches of the old Tartar army with which the present dynasty conquered the country in the 17th century. These are the old Banner army and the army of Manchuria, both of which have recently been subjected to some military training and are more or less equipped with modern weapons. The Banner army is still composed mainly of Manchus under their eight banners, the Mongols and Chinese or Han-chun under their separate banners, and the contingents from the Solon and Sibo tribes who were specially renowned for valor in the wars of the 17th and 18th centuries. The total strength of the Banner army is stated to be not less than 300,000 men, distributed as follows:—100,000 in Peking, 20,000 scattered throughout China in cities like Canton and Nankin, and 180,000 in Manchuria. A considerable number of this large force have not received any regular modern drill, adhering to their old custom of practicing with the bow, and performing various athletic and even acrobatic feats. About fifteen years ago the late Prince Chun, father of the reigning emperor, took up the question of organizing part of the Banner army after the fashion of the Black Flag force of the Viceroy Li, and he assumed the personal command of what has been called the Peking field force. Its strength has been estimated at 20,000 men, and he raised it to a considerable point of efficiency, although probably not as high as that of the Black Flag army, if only for the reason that he did not employ any European officers. As material for a useful and formidable army the Manchus of this particular force cannot be surpassed, and there is no reason to suppose that the efforts

to add to its numbers and efficiency have been seriously relaxed since the death of Prince Chun.

With regard to the second Tartar force, the army of Manchuria, its exact numbers are not easily to be ascertained, but it is raised from the 180,000 banner men on the register in the three divisions—viz., Fengtien, Kirin, and Heilung-chiang—of that vast province. The Mongols also furnish many recruits, especially to the cavalry, and the Chinese population has increased in an almost extraordinary manner during the last few years, and, as military service is obligatory, could be drawn on in case of necessity. How large a proportion of these numerous tribesmen, whose *métier* is supposed to be fighting, have received any training and modern weapons is matter of diverse opinions and estimates, but the best information puts them at 80,000.

Attention must be called to the real point of weakness in the military strength of China. The raw material of which the Chinese army is composed is as good for the purpose as any in the world, and the statement that those troops who have been drilled make an excellent show on the parade-ground can be accepted without reservation. But it requires more than efficient soldiers to make a victorious army, and without skillful leading the best-trained troops must be of little value in the open field against a capable commander.—*Times*.

THE JAPANESE ARMY.

The *Journal des Debats* publishes some interesting notes on the Japanese army, made in 1892 by a French military expert who had the opportunity of following the grand manœuvres of that year in Japan. These manœuvres take place every two years, and should have been repeated this year had they not, unfortunately, been replaced by real warfare. In 1892 30,000 men took the field. These formed three divisions, each completely organized in European fashion, and comprising infantry, cavalry, artillery, engineers, and train. The general idea of the campaign supposed that an invading army had landed at Sendai, in the north of Nippon, and after having repulsed the Japanese division occupying that town, was marching in several columns on Tokio. The imperial army, which had been concentrated round Tokio, was then to effect a junction with the repulsed division, and meet the invading forces near Utsunomiya. Among the engagements which took place, one or two, it is true, were planned from beginning to end beforehand. This was in accordance with the wishes of the emperor, who is reputed to love a bit of theatrical warfare. On the other hand a great part of the fighting was unexpected, and passed "as in war." The Japanese infantry, although young in appearance, seemed to be in excellent condition. Their resistance to fatigue was really remarkable, although their food consisted only of rice and fish, and they usually slept on the hard ground. The common soldier is well disciplined and very intelligent. The non-commissioned officers are well trained, and are full of vigor and dash. For this reason the regularity of German tactics—by which the army is now influenced to a great extent—is unsuited to their character. It is equally unsuited to the nature of the country, in which the

only fortresses are the rivers. The villages, being built of wood and straw, are utterly useless as shelter, as balls of the smallest calibre would very soon play havoc with them. The only natural obstacles are the woods. Of these—but more particularly of the rice plantations—the infantry have learnt to make excellent use. The cavalry, on the other hand, are the weakest portion of the army. The men, and even the officers, are badly mounted and ride badly. The horses have no "go" in them. They trot badly, gallop not at all, and could not compare in speed with a "jinrikisha" runner, who can easily accomplish his forty miles in a little over eight hours. Of the field artillery nothing but praise can be said. Their movements are executed with swiftness and precision. The guns used are mostly 3-inch bronze pieces from the national arsenal at Osaka. They are good at from 2500 to 3000 yards, but can be used with effect at a longer range. Unfortunately, they cannot easily be transported everywhere, as the country roads are for the most part mere bridle-paths—broad enough, at best, for the passage of a "jinrikisha," and full of steep declivities and sharp turnings. Of the commissariat little is said, but the organization of the medical service receives great praise. In all the actions the ambulances succored great numbers of "wounded," to say nothing of those who really were *hors de combat*; and at Utsunomiya a Red Cross hospital, under most efficient management, was installed. The French officer received, on the whole, an excellent impression of the Japanese army. In the event of invasion it would, he thinks, defend its country with tenacity and—to all appearance—with success. The country, he points out, lends itself admirably to guerrilla warfare, for which the Japanese have an hereditary aptitude. If the war had to be carried into another country fears of disagreement as to tactics among the commanders might well be entertained. But although the Japanese officers and troops, when confronted with unfamiliar tactics and an unknown territory, may be inferior to European soldiers, "they would, in any case, have little to fear from a Chinese army or a Korean band." When these conclusions were penned, it is interesting to remember, war between China and Japan was only a distant possibility.

TURRETS IN THE FORTS ON THE LINE OF THE MEUSE.

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(Continued from Journal No. 71.)

THE ARMORED PROJECTOR STANDS.

THE necessity for search lights in field and siege operations is placed at its true value; its application will increase with the frequent advantages of night work and night operations.

The electric light will be used by the besieged:

1. To control the night fire; to secure themselves against surprise and strong assaults; to light up the breach and ditches in case of a threatened

assault, or, on the other hand, to illuminate the entire ground in front of the fort for a sortie.

2. In order to interfere with the progress of the first works of the attack, with the object of gaining time for further works for the defense.

3. For exposing the first parallel and the placing of the artillery of attack.

4. For lighting up the terrepleins in order to be able to make the necessary repairs, as well as to facilitate the reaching of indicated places in the darkness.

5. For visual signalling.

From this, it results that all forts must be provided with search lights capable of lighting up the foreground to a distance of 3 or 4 kilometres. These projectors are placed at the highest points so that they can light up all the foreground beyond the foot of the glacis—in the most unfavorable case from a line 100 or 150 metres beyond the glacis crest.

These stands are arranged for telescopes with the object of facilitating observations in the day time. When of somewhat larger dimensions, it is further possible to place rapid-fire guns in them for defense.

All the forts of the Meuse line are provided with armored search-light stands, which can also be used for the transmission of visual signals. They are in every case at the highest point of the fort, and therefore command the entire exterior ground. One arrangement of the search-light stand results from the condition that the construction must not pierce the large mass of concrete placed below; this limits the height of the construction, and causes the apparatus for raising and lowering the stand, as well as the counterweight, to be placed to one side.

The cupola is of soft metal with an interior skin, and has at the upper edge a sort of cornice, which in the lowered position, lies in a similarly shaped rabbet in the glacis. By means of a curved projecting plate fastened to the cupola, the stand is protected against the entrance of rain or dust.

The glacis consists of three pieces of chilled cast iron.

A ladder fastened to the stand, and moving with it, affords connection with the postern.

The substructure of an armored stand for a projector of 600 mm. diameter, has two interiorly placed elastic guides, with the object of diminishing shocks as well as of increasing the steadiness and accurate motion of the stand.

The observing room has a double motion. It can be raised and lowered as well as turned about a vertical axis; the amount of upward motion is determined by the dimensions of the cone of light; the revolution must be for 360°. The apparatus furnishing the power for the mechanism necessary for both motions, is placed beneath the stand in the postern; one man is sufficient for operating it, following the directions of the observer.

A powerful dynamo furnishes the current which feeds a second transportable projector, in addition to the one in the stand. This second one can be placed outside the fort at a distance of 300 metres from the dynamo;

besides this, current is furnished to the incandescent lamps necessary for lighting the rooms of the fort.

With a projector of 0.60 m. diameter, bright colored objects can, on a dark but clear night, be distinguished at a distance of 3000 and even 4000 metres.

Thus far the article upon the turrets of the Meuse line in the *Revue de l'Armée Belge*, has been generally followed; it is, however, not out of place here to speak, as far as known, of the remaining turrets not mentioned in the *Revue de l'Armée Belge*, which were made in France and erected along the Meuse.*

General description.—Among the turrets for the defense of the line of the Meuse, only revolving ones for heavy guns were constructed in France. The turrets for the 15 cm. guns always received two and those for the 12 cm. guns, either one or two guns.

The cupola is made of 20 cm. plate-iron whose joints generally run perpendicular to the plane of fire, and are secured by an inner skin of steel plates, 20 mm. thick, rivetted together. Large headless screws, 50 mm. in diameter, pitched at 30 cm., fasten this interior skin to the armor plates, extending 40 to 50 mm. into the latter. This sort of fastening was adopted on account of the experiences gained in ships' armor, which show that such screws are neither displaced nor broken off by the impact of projectiles, neither do they weaken the plate when they enter it only a distance equal to their diameter, and the thickness of the plate is at least equal to three times that diameter.

With reference to the strength of armor, 29 cm. thick, the Bucharest experiments made in 1885 and 1886 were satisfactory, as were also, doubtless, those trials made upon the firing ground at Brasschaet, where gun-cotton was fired in contact with the armor plates.

The glacis of chilled cast iron has a height of 1.30 metres and a thickness of 32 cm. at the upper, and 24 cm. at the lower edge. The open ring is from 5 to 10 cm. wide.

The guns have a recoil of about 13 cm., and do not project from the embrasures. The carriages are minimum embrasure carriages; the guns after discharge return automatically to the firing position. The vacant space between gun and embrasure cheeks is closed by an elastic ring fastened to the gun. By special appliances it was sought to prevent the lateral displacement of the turret due to the recoil of a single gun or as a result of hits. Electrical ignition is employed in order that the rotation of the turret may not be interrupted for firing. Rotation is obtained by means of a circle of conical rollers, and the possibility of having to replace single rollers has been provided for. For turning, a rack is used in which a pinion turning upon a vertical axis engages. This axis is connected by horizontal gearing with the windlass placed in a recess of the lowest story, and which can be worked by six men. The lateral arrangement of the turning apparatus is necessitated by the ammunition lifts, which turn with the turret, and for which free room is necessary in the lowest story.

The turrets permit direct and indirect laying of their guns. For direct

* *Revue du Génie Militaire*, for March-April, 1892.

aiming, use is made of a manhole placed at the highest point of the cupola, and through which the head can be thrust. An aiming notch and a sight upon the exterior of the cupola, mark the plane of sight. A peep slot is further provided for the same object in a meridian parallel to the plane of fire, and in a directly opposite direction to the embrasures; this peep slot is likewise provided with an aiming notch and sight. When the turret is then turned 180° by means of the graduated circle upon its interior, the guns are in the desired direction for firing.

The indirect laying is carried out by means of the graduated circle, from the results of observations, or by laying from firing tables, and is permissible only for the bombardment of immovable targets.

Owing to the turrets being kept in constant rotation while firing, and to the electrical contact for each gun being made entirely independently, it is possible to conduct simultaneous firing at two different targets.

For direct firing against a moving object it is necessary to resort to a slow, as it were, a micrometer movement of the turret, which is provided with special turning apparatus for this purpose. This is situated in the gun-room and is worked by one man, who follows the directions of the person at the manhole. A special brake which is used in the same story prevents the movement of the turret, so that it is impossible for the recoil of the guns to affect their aim.

The possible angles of elevation lie between -2° and $+25^\circ$. In order to obtain the necessary elevation quickly, without complicated hydraulic apparatus, the gun, together with the gun-carrier, is balanced by means of a counterweight; in this way the elevation is quickly given by a handwheel and gearing worked by one man.

So far the actual constructive features common to all turrets have been pointed out; the detailed descriptions of those built and delivered by the different French establishments will now be undertaken.

CHATILLON-COMMENTRY. TURRET FOR TWO 12 CM. GUNS.

Substructure.—The substructure is composed of a plate-iron covering and vertical I beams. Four vertical beams upon the embrasure side have a cross section increasing in size from below their base to the top, as they have to hold up the steel block placed on them for the purpose of strengthening the armor around the embrasures, and also to receive the ties of the gun carriages. The two interior ones of the four are connected together by iron plates so as to form a box girder. Three box girders, fastened to the vertical beams and two cross beams, sustain the flooring. Two trapdoors communicate with the intermediate story, while two movable panels behind the gun carriages permit any necessary changing of the guns. At the upper end of the vertical beams is a circular channel formed of angle irons.

Armor.—The cupola consists of three armor plates with joists perpendicular to the plane of fire. The plates are provided with a double interior skin. Strong screw bolts connect the cupola with the angle iron channel. The vacant space is filled with melted lead. In the front armor

plate are the embrasures with vertical cheeks; in the middle plate is the observing hole, and in the back plate is the peep slot.

Glacis.—The glacis, formed of six segments of chilled cast iron, covers the circular gallery, which can be entered by a door in the substructure wall.

Turning.—The turret rests by an upper circular track upon a ring of 20 double-flanged conical rollers, and turns upon a circular track set in the masonry. The upper track carries a circular rack upon the interior, in which works a pinion mounted upon a vertical journal; this journal runs down to the lowest story, and is carried horizontally to the crank shaft by means of beveled gears which can be thrown in and out of gear.

At the other end of the crank shaft is a circular plate, and by means of a fixed pointer it is possible for the men engaged in turning the turret to tell its position at any time. In this way they can quickly give the communicated direction, or if the embrasures are passing a dangerous position, accelerate the rotation. Below the above-mentioned circular rack is a graduated circle, fastened to it, which turns with the turret. A fixed pointer attached to the lower rail serves for reading.

Gun mountings.—The carriages are independent of each other. They consist of two strong cast steel cheeks which are fastened to each other by cross bars, and to the floor beams by bolts. Plate steel tension pieces connect the carriage cheeks with the vertical substructure beams in front. Between these cheeks slides a cast-steel gun-carrier which embraces the gun, and is prolonged to the embrasure and terminates in it. The end of this gun-shaped prolongation is kept centred in the embrasure by two movable arms which are fastened by links to the tension plates below.

Two sliders which guide the gun during recoil are cast upon the gun carrier. Besides these there is a buffer-cylinder cast upon each side, and a third cylinder underneath, which last serves for the automatic return of the gun.

The gun trunnions rest in two sliding carriages, whose lower portions grasp the above-mentioned slides; both sliding carriages are united to the piston rods of the corresponding cylinders. The piston is movable in the cylinders, and both side cylinders are connected with the return cylinder by a channel. The latter cylinder contains a piston which works by a Belleville spring. During recoil the fluid behind the piston escapes through the grooves in the cylinder wall; the grooves have a varying cross section so that the resistance will remain constant. In order to regulate the forward motion of the gun, due to the action of the spring, a ball valve is inserted; during recoil this opens completely, but leaves only a small free space as soon as the fluid begins to flow in the opposite direction, so that the gun slides forward but slowly. In order to be able to observe at any time the actual discharge of the fluids in the buffer-cylinder, two rings are marked upon the piston rod of the lower cylinder; when these remain visible the necessary amount of fluid is present; in the contrary case fluid is pumped in with a force pump, which is connected by a copper pipe with the buffer cylinders.

Lateral aim and brakes.—The necessarily slow turning of the turret for

lateral pointing is effected by a handwheel. This operates through beveled gears upon a vertical arbor, and this through gearing upon a pinion which works in a circular rack fastened to the lower rail. By means of a pedal operating a clutch, the action of the pinion, which effects the turning of the turret, can be interrupted at any instant.

The two sets of brake apparatus for clamping the turret consist, first of a handwheel, to which the power is applied; its motion is carried by an endless screw and a pinion to a vertical arbor, which is provided at its lower end with a screw thread, and carries a brake shoe; this last engages with its lower surface against a trapezoidal fillet cast on to the lower circular track, and in this way the brake shoe can be brought up against the fillet as desired.

Elevation is given by means of a handwheel, which acts through gears upon an arbor; a chain which carries at its upper end an arm rigidly attached to the gun-carrier runs over a sprocket wheel upon this arbor. The lower end of the chain carries the counterweight by which the gun and gun-carrier are balanced.

Prevention of the entrance of gases.—In order to remove the free space which exists between the gun-shaped projection of the gun-carrier reaching into the embrasure, and the embrasure itself, the inner end of the opening made in the front plate and the steel block, is made spherical in form. In this spherical recess is placed, concentrically, the similarly shaped end of the gun-carrier; it consists of two parts. At the junction of these two parts there is an elastic collar which is in close contact with the walls of the embrasure.

Observation hole.—The hole in the middle armor plate for observation purposes has a diameter of 30 cm., and in it slides a hollow sheet iron cylinder. This cylinder has several observing holes in it, and carries on top a steel plate which fits into a recess of the armor plate; it is connected by means of light chains passing over rollers with a counterweight.

A platform serves for observing. The observer places his head in the cylinder and, with the lower edge resting upon his shoulders, raises it by pushing. As soon as he withdraws, the slight excess of weight in the cylinder causes it to slide down automatically and closes the opening.

Ammunition lifts are placed at the sides of the guns.

Ventilation.—Two hand-power centrifugal ventilators of 80 cm. diameter, placed upon the same axis, are used for ventilating the turret; foul air is drawn out by one while fresh air is forced in by the other.

The turret for a single 12 cm. gun is similar to the one just described, differing from it only in the smaller diameter.

ST. CHAMOND. TURRETS FOR TWO 15 CM. GUNS.

Substructure.—The substructure consists of two plate-iron cylinders 20 mm. thick, which are stiffened by 15 I beams.

Armor.—The cupola consists of three wrought iron plates, 20 cm. thick, with joints parallel to the plane of fire, and of an interior skin of two thicknesses of 20 mm. The fastenings for this have been previously described

with the other turrets. The joint between the cupola and the substructure is effected by a cast steel sill. The middle armor plate receives both embrasures,—the manhole and the peep slot.

Turning.—The turning is accomplished by means of a ring of rollers.

Gun mountings.—The three plate-steel carriage cheeks are firmly secured to the floor and substructure. The two sliding frames which lie between these cheeks are made of cast steel, and have cast on them two buffer-cylinders and a cylinder for the return of the gun. The piston of the latter acts by means of a cross arm upon the two long Belleville springs. Two guiding surfaces of these frames move the gun-carrier, which is connected with the piston rod of the buffer-cylinders. Upon recoil, the fluid (3 parts glycerine and 2 parts water) escapes from the buffer-cylinders through a canal and through the valve chamber into the lower cylinder. The gun-carrier has also upon its lower side two spring buffers, which, at the end of the recoil, and upon sliding forward, strike against stops, and in this way assist the action of the buffers and the automatic return cylinders. After recoil the fluid is, by means of the action of a Belleville spring upon a piston, forced back through a small canal (and not through a chamber) into buffer-cylinders, so that the gun-carrier slides forward slowly and automatically.

Elevation.—The frame together with the gun-carrier slides in the curved grooves of the carriage cheeks; the frame is in this motion supported in front by a roller which also moves in a slot connected with the substructure underneath the embrasure. On the inside of the cheeks and near the top are rollers over which a chain runs, connected on one side with the gun-carrier and on the other with a counterweight. A curved rack fixed to the frame works on a pinion, which is turned through gearing by the hand-wheel. The graduation is on both outside cheeks.

Aiming and Clamping Apparatus.—There are two vertical journals with handwheels placed near each other so that they may be operated by one man, and which serve for turning and fixing the turret. It has been sought to effect these two operations by a single handwheel, and an arrangement has been devised for this purpose. A small revolving pinion, operated by means of a handwheel and beveled gearing, works in a large horizontal pinion which is loosely placed on a central shaft by means of a notched collar. The lower portion of the shaft runs through a sleeve, which carries at its lower end a pinion for aiming; this pinion works in the circular rack of the lower track; the upper end of the central brake shaft terminates in a screw which carries a female screw. The latter as well as the above-mentioned sleeve, have notches on the end towards the large pinion, so that it is possible, by means of the gearing apparatus, to use the turning of the large pinion either upon the sleeve (lowered position) for lateral motion, or for clamping of the turret. In the latter case (raised position) the female screw is turned, and in consequence of this turning, the bent portion of a brake rod, working in a recess in the lower track, is brought up against the back of this recess. Ordinarily the collar with the large pinion remains midway between the two positions.

Prevention of the entrance of gases.—For this purpose the ring of rollers is enveloped on the side of a circular gallery with a jacket of plate

iron. There are valves placed in the substructure wall; they open toward the circular gallery so that they would be closed by an explosion occurring in it as soon as the strength of the spring was overcome. To further the same purpose, the end of the gun is provided with a cylindrical collar, which slides in a second collar which turns about two horizontal pins and these are supported in the cheeks of the embrasure. This second outer collar is in two parts; the inner part is of bronze—the outer one of steel, and they are screwed backwards into each other. These collars carry in the groove, in their enlargement at the outer end, a copper and a somewhat larger leaden ring of equal diameter with the spherical recess behind the embrasure.

The observing hole.—This has a diameter of 40 cm. This construction affords protection against vertical fire only, but permits a view of the entire horizon.

The turrets for one 12 cm. gun are similar to that just described, but are of smaller dimensions. The cupola, which has the same strength of armor, consists of two plates with the joint at right angles to the plane of fire.

CREUSOT TURRET FOR TWO 15 CM. GUNS.

Substructure.—The cylindrical substructure consists of 20 mm. plate steel and 14 vertical I shaped stiffeners. A door in the cylinder communicates with the circular gallery. Three longitudinal and two cross beams carry the floor.

Armor.—This is formed of three plates, 20 cm. thick, whose joints are perpendicular to the plane of fire. The doubled interior skin is fastened to the substructure by means of a cast-steel cornice. The armor plates are fastened to the interior skin in the manner already described, and are held along the edge by the above-mentioned cornice. The front plate contains the embrasures which possess no outside swell; a steel block is, however, placed on the interior, just underneath the embrasures, for the purpose of strengthening the armor at that part; this block also serves for holding the end of the gun.

Glacis.—This is formed of six chilled cast-iron segments. The open ring is 5 cm. wide. The circular gallery is 1.80 metres high, its bottom being slightly lower than the floor of the interior. A sunken space, covered by a trapdoor, permits access to the rollers.

Turning.—For this purpose the turret rests upon a ring of 42 conical rollers, by means of a circular track fastened to the substructure. The upper track has a rack on the inside in which a pinion mounted on the vertical shaft works. The latter runs down to the lowest story and is moved by a windlass standing in the recess.

Traversing.—The lower track resting upon the masonry has also a circular rack upon the interior with a pinion working in it. The shaft of this pinion runs vertically upwards and is operated by a handwheel through the gearing. This second apparatus serves for the slow-turning aiming, and is thrown into gear as desired by means of a foot lever and a sleeve. A graduated circle is placed on the masonry substructure; a pointer serves for reading.

For steadying the turret during rotation, vertical cylindrical rollers are placed around the outer circumference of the substructure; they run on a cast-steel circular track upon the upper corner of the masonry (floor of the circular gallery).

Clamping apparatus.—This consists of a double friction clutch which grasps the circular track just mentioned, and can be brought into contact by means of a handwheel and revolving shaft.

Gun mountings.—Each gun carriage has two cheeks fastened to the floor and to the substructure. Upon the inside of the cheeks are circularly curved grooves in which a gun-carrier slides. The two trunnion carriers are movable, and slide forward and backward in the interior guides on both sides of the gun-carrier, and are connected by two tension rods to a cross arm resting on the forward portion of the gun. The spiral springs are compressed during recoil by the cross arm, and after recoil, effect the automatic sliding forward of the gun. For the purpose of diminishing the recoil, the buffer cylinders are cast upon the front and rear of the two trunnion carriers; their piston rods are firmly fastened to the pieces of the gun-carrier. The drawing out of the front piston rod serves to hold the above-mentioned spiral spring in place, and to guide the cross arm during the motion. The cylinders move with the backward and forward motion of the gun, while the pistons remain fixed. The fluid driven out in this way runs by a canal from one cylinder to the other. Elastic buffers limit the motion in both directions.

Elevation.—A straight rack is fastened to the lower part of the gun-carrier for this purpose, and a pinion upon a horizontal shaft works in this rack. The shaft is turned by the handwheel at the side. The rack carries at its lower end a gall-chain, which, passing over rollers, carries the counterweight.

Ammunition lifts.—These are tubes fastened to the side pieces of the two ladders communicating with the lowest floors.

Ventilation and security against the entrance of gases.—Valves are placed in the plate iron wall of the substructure. A plate iron collar, 5 mm. thick, which brushes along the circular track, prevents the entrance of gases in the vicinity of the rollers. The free space existing between the end of the gun and the embrasure walls was removed by means of a rubber ring 50 mm. thick, which was let into a corresponding ring-shaped recess in the embrasure walls; this thickness was recognized as insufficient and has been repaired according to the results of experiments. A centrifugal ventilator driven by hand-power provides for the furnishing of fresh air.

The observing hole is used from a platform reached by a ladder placed between the guns.

It might not be uninteresting now, when the works upon the fortifications along the Meuse are approaching completion, to cast a glance upon the sums estimated and actually expended for the purpose.

As is known, the credit of 24,000,000 francs demanded for the fortification of the Meuse was voted during the latter part of June, 1887, at which time construction was begun.

As early as 1888, owing to the abandonment of the citadel of Namur and the increased number of the forts of position necessitated thereby, the sum total set at 24,000,000 francs had to be increased to 32,000,000 francs.

The preliminary work executed and the moving of earth done, up to this time, showed, however, that even with the increased demand the object would not be attained, so that again in the same year a new estimate was made, which brought the amount up to 54,000,000 francs, the cost of turrets included. In the preliminary for the budget, however, the total for fortifying the Meuse appeared at 64,000,000 francs.

The report upon the fortification of the Meuse made since then to the Chamber of Deputies, by direction of the government, quotes the above estimates with the remark that the final total demand, including 2,000,000 for the furnishing of electric lighting apparatus, would not exceed the sum of 71,000,000 francs. In consequence of the explanation demanded upon this point by the Chamber, a report was submitted by the government giving reasons for these repeated increased demands, to which a detailed summary of work done and expenditures made was attached.

From this summary is noted :

1. In this estimate of 1888 neither the cost of erection of storage sheds and watching of articles, nor that of the experiments made, was foreseen. The expenses under this head amount to 817,340 francs, 48 centimes.

2. For acquiring ground only 900,000 francs were estimated. The sums actually expended for this purpose amount to 1,385,971 francs, 6 centimes.

3. The earthwork mentioned and its price per unit have considerably exceeded the volume and price assigned them in the estimate. In the estimate of 1888, there were 2,720,000 cubic metres of earth to be moved at an average price of 1 franc, 60 centimes per cubic metre. Up to June 15, 1891, however, 3,070,986 cubic metres of earth had been handled, and the average price paid was 2 francs, 39 centimes per cubic metre.

4. The average price per cubic metre of concrete laid down in the estimate was exceeded by the sum of 2 francs, 78 centimes.*

5. With respect to the high transportation and mounting expenses ; the expenditures for providing the turrets will exceed the originally named amount by about 4,000,000 francs, and a total of 24,000,000 francs will be needed for this purpose. As already stated, 2,000,000 francs are for the armored projector stands.

The original total demand of 24,000,000 francs has therefore gradually grown to 32, 54, 64 and 71 million francs. Since then a further 13,700,000 francs has been voted for the completion of the earthwork. More than 80,000,000 francs have therefore been expended in the fortification of the Meuse.

The expenditures upon this project have, however, not yet ceased, for when the completed works were to be occupied by troops, it was found that permanent residence in the barrack casemates, built without proper consideration of sanitary demands, would not be possible without injury to the

* There were 1,150,000 cubic metres of concrete used.

health of the men. The garrisons have therefore been housed in Liège and Namur, until the proper sheltering structures for each work are built and furnished.

Should the proposed plans advanced by Brialmont be adopted, activity in fortification building would not cease with the foregoing defensive works, but would continue for a long time. The erection of a group of forts upon the right edge of the Meuse Valley between Liège and Namur not far from Ortis Huy, on the site of the old Roman camp on Mount Corroy, as well as on the heights of Felize, is under contemplation. Finally, the highway between the fortified camp of Beverloo and the left bank of the Meuse across the entire open plain of Hespengauzes should be closed by placing a barrier fortification at St. Truyen (St. Trond).

THE WAR BETWEEN CHINA AND JAPAN.

MOVEMENTS OF THE TROOPS.

(From the Army and Navy Gazette.)

At last the position of affairs in the East has cleared, and in place of skirmishes on land, magnified during transmission into Chinese victories, and desultory engagements at sea, the intricacies of which, owing to similar causes, it has been impossible to disentangle, we have news of two battles serious in their nature and important in their bearing on the course of events. Every scrap of information yet received shows that the Japanese have assumed the offensive afloat and ashore, and are determined to utilize the advantage they have already gained by crushing their antagonist before the winter sets in, and ice closes the water-way in the Gulf of Korea.

Last week we reported the main position of the Chinese land forces to be at Ping-Yang on the Tatong River, possibly with advanced posts thrown out in the direction of Kai-Tong on the road to Söul. Their fleet, recently strengthened by some vessels from the Southern or Foochow Division, was at Port Arthur, and it was naturally expected by naval men that its next move would be an attack upon the Japanese cruisers engaged in protecting their transports at Hwang-Ju and Chemulpo.

On the other side, the Japanese troops in three columns were declared to be converging upon Ping-Yang from Gensan, Söul, and Hwang-Ju. Of these three places Gensan is on the eastern coast of Korea, at the head of Broughton Bay, and somewhat to the south of Port Lazaref. That troops had been landed there had already been reported, but the paths across the mountains in the direction of Ping-Yang or its rear were supposed to be impassable except to a flying column. What force was passed along this route is unknown, but it is evident from its having arrived on the scene of action with admirable punctuality and promptitude that the road did not offer any insuperable difficulty to the Japanese. The second column, operating from Söul, is that which has doubtless been in touch with the Chinese all along, and it is the skirmishes between outposts or reconnaissances made

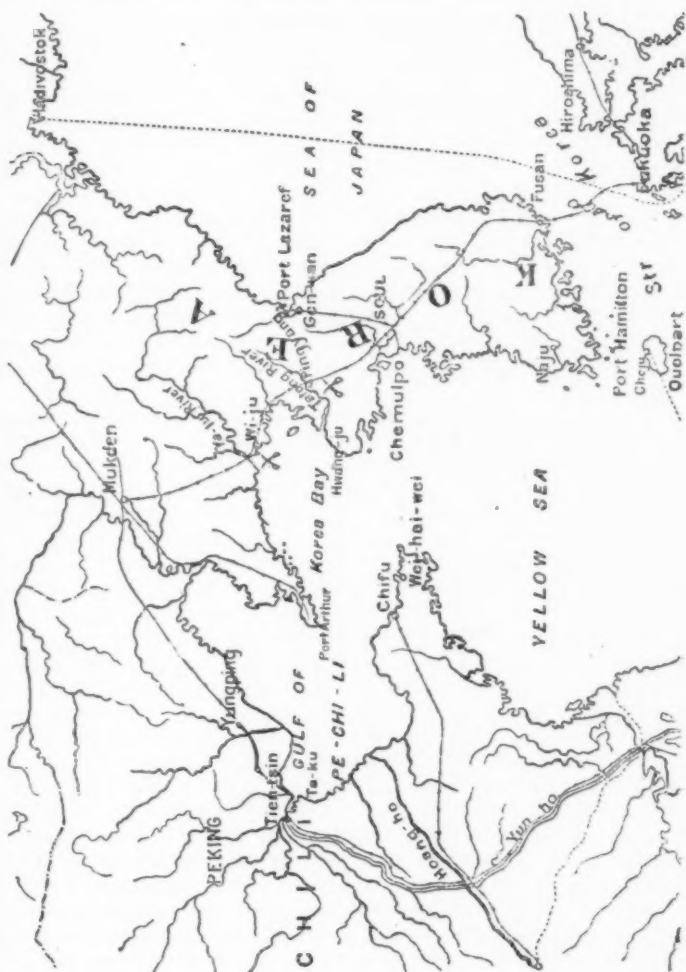
by this force of which we have already heard so many exaggerated reports. The third column, from Hwang-Ju, at the mouth of the Tatong River, is that which was landed there under the guns of the Japanese cruisers in the inlet, and of which it was at one time stated by the Chinese that their cavalry had cut it to pieces. At all events it lived to fight another day, and, reinforced by seamen and marines from the fleet, took part in the great battle at Ping-Yang.

This appears to have been the situation of affairs at the end of last week, and it must be acknowledged that while the Japanese had made the most of the comparative security in which the enemy had left their sea communications, the Chinese had also secured a naturally strong defensive position at Ping-Yang, and, in spite of the disadvantages of bad transport over a long land route, had there placed a force which, judged by European standards, should have been able to hold its own in intrenchments for at least several days, if not weeks. As to the inactivity of the Chinese fleet, no words seem too strong to express the utter contempt which naval men feel for it as a factor in the situation. The ships we know to be staunch, the men, we have the authority of Capt. Lang for saying, are good also; but as to the officers, at all events those who have the control of the naval movements, brave they may be, but indolence, inaptitude and absolute ignorance of the first principles of their art, mark every attempt they have made to use the excellent material at their disposal.

By the night of Friday, September 14 (we may remind our readers that there are several hours difference between the time in eastern waters and ours in England), the three Japanese columns were in position for a combined attack and in touch one with the other; that from Gensan feeling the Chinese left, the Pong-San or Söul column facing the fortifications, and that from Hwang-Ju the Chinese right. At daybreak on Saturday, September 15, the Japanese artillery with the centre column opened fire, and a bombardment of the fortifications was maintained until after noon, the Chinese, whose position in this quarter was recognized to be exceptionally strong, replying with a brisk cannonade and making good practice with their guns. At 2 P. M., evidently with the intention of misleading the defense, the Japanese infantry of the Söul column advanced to the attack, and under a combined fire of rifles and artillery, succeeded in wresting from the Chinese some advanced positions and also in discovering that the earthworks had suffered considerably from the bombardment. Desultory firing continued throughout the night on the front of the Chinese position, chiefly, we may suppose, to engage the attention of the defenders, for meanwhile the columns on their flanks were closing in and working towards the rear.

At three o'clock on the morning of Sunday, September 15, a simultaneous attack was made with admirable precision by all three columns. The Chinese, surprised and taken in rear, where, if the Japanese reports be true, they had omitted to throw up adequate defenses, quickly became panic-stricken, and although some of the better-disciplined troops fought to the bitter end, all real resistance had ceased in less than an hour. The greater part of the defenders were surrounded, and had no other option than to submit, for they were hemmed in by the flanking columns, while the force

in front, rushing the intrenchments bombarded on the previous day, completed their demoralization, and those that were not killed, wounded, or prisoners, sought safety in flight, a dispersed and routed body.



That the victory was complete is admitted by the Chinese, although as was to be expected, the accounts differ as to the losses on either side. The Japanese claim to have captured immense quantities of stores, provisions, arms, and ammunition. with hundreds of colors. They state that 20,000

Chinamen defended the position, of which number 17,000 were killed, wounded, or made prisoners. The killed are placed at 2500, and unwounded prisoners at 14,500. Their own losses they estimate at 30 killed and 270 wounded, including 11 officers, while they admit that they brought on to the ground a force outnumbering the enemy by three to one.

These figures seem to be out of all proportion, and there is a greater element of probability about those of the Chinese, who acknowledge to have had 6000 killed, wounded, and taken prisoners out of the 10,000 men who, according to their account, defended Ping-Yang.

Among the officers captured are Gen. Tso Fonk-wai, the Commander-in-chief, and Gens. Tso Paok-Woi, Wei Jink-Woi, and Sei Kin-liu, forming his staff. The name of Gen. Liu Ming-Chuan, who has hitherto been referred to in telegrams as commanding the Chinese troops in the Korea, is not mentioned, which gives some color to the story that there is still a large Chinese army, said to be 50,000 strong, between Ping-Yang and the Yalu River. This report is also strengthened by a message received at the Chinese Legation in London on Monday from Li-Hung-Chang, in which the viceroy, who could hardly at that time have known of the completeness of the disaster, stated that he feared the force there would not be able to hold on to Ping-Yang.

The Japanese commanders, with the energy they have shown all along, did not allow the grass to grow under their feet on the day of victory. A flying column, of which we may expect to hear more shortly, was pushed on along the road which leads from Ping-Yang over the Yalu River through Mukden to Peking. Whether it is in contemplation to follow immediately with the main body is not clear at present, and is indeed unlikely, if opposition is expected. The city of Ping-Yang was occupied, steps being taken to restore order and to place the large number of prisoners in safe keeping. Finally, within ten hours of the defeat the field telegraph was completed to Söul, and Field-Marshal Count Yamagata wired to the Emperor at Hiroshima the news, receiving in return a telegram from his majesty thanking the troops and congratulating the field-marshal and his officers on their brilliant achievement.

Since the battle of Ping-Yang 80,000 more Japanese troops have, it is said, been landed in the Korea and are being sent on to the front. Field-Marshal Count Yamagata and his chief of the staff, General Nodzu, are credited with the intention of either attempting to capture the sacred city of Mukden or making a dash on Niu-Chwang. Before, however, either of these courses can be taken there is something else to do.

Near Wi-Ju, on the Korean frontier, China has massed an army, the strength of which is variously estimated at from 25,000 to 75,000 men. It consists of the main body of the Chinese First Army Corps under Gen. Liu-Ming-Chuan, reinforced by the survivors of the defeat at Ping-Yang, and the 7000 Hunanese under Gen. Wei, which were landed at Yalu. It is probable that this army is intrenched, and as its position can hardly be turned so long as the command of the sea is still in dispute, it should be trusted to make a strenuous resistance. Its morale, however, cannot fail to have been shaken, and it is tacitly admitted by the Chinese that it is not so

efficient in many respects as that which was surprised and broken at Ping-Yang. However, it will take the Japanese commanders some little time to get sufficient stores and ammunition to feed a large army over the 100 miles which separates Ping-Yang from Wi-Ju, and to send the soldiers up before they can be fed is out of the question.

The alternative plan to make a dash on Niu-Chwang, which is on the northeastern shore of the Gulf of Pechili, has everything to recommend it, provided that the sea communication could be made good. But the Chinese fleet has yet to be reckoned with, and resting as it does on the strongly-fortified bases of Port Arthur and Wei-Hai-Wei, at the entrance to the gulf, it would be the height of imbecility on the part of the Japanese to think of taking transports through the straits which lie between these two places. To do so would be to follow the example of the Chinese, and to court not only defeat at sea but the loss of everything yet achieved. It might be different if the Chinese fleet could be treated as a negative quantity, but even in this case the torpedo-boats of the Chinese might make themselves felt after dark. At the present time both sides are hard at work repairing damages, and when ready we shall probably hear of another naval battle before any other movements are attempted afloat.

According to one of the Chinese reports, the island of Hai-Yung-Tau has been made a store and coaling station for the Japanese fleet. This island contains a good harbor, marked on the English charts as Thornton Haven, and fresh water can be obtained there. It is therefore likely that it has been used by the Japanese torpedo-boats, and it is probable that these boats gave information to the Japanese admiral of the departure of the Chinese fleet from Port Arthur. But as to making it a depot or store station, that is quite out of the question. It is about equally distant from Port Arthur and from the entrance of the Tatong River, and not quite so far from the estuary of the Yalu. As, therefore, torpedo-boats of either side might reach the port, it is unlikely that ships would remain at anchor there or land stores. It is possible, however, that the Japanese have a fast vessel among these islands for the purpose of supplying their torpedo-boats with coal. Such a vessel would, however, keep moving about, and that a statement to the effect that the island has been made a store depot should emanate from a Chinese source is sufficient to discredit it.

Everything points to the entire collapse of the Chinese power at sea as the result of the naval battle of the Yalu, and consequently to a general scare in Peking, where it is feared that the enemy will soon appear. The fact is that the whole of the Chinese littoral is now open to the Japanese assault, and there is scarcely any point at which under cover of their ships' guns they cannot land. For this reason the wildest reports are set afloat as to bodies of Japanese troops having been embarked, and if all the telegrams are true there must be at least three directions in which the invaders are penetrating into Chinese territory.

The necessity for concentrating their forces has at length been borne home upon the Chinese officials, and with this end in view they have entirely evacuated the Korea. The army at Wi-Ju, on the Yalu River, which is said to number 20,000 men, inclusive of refugees from Ping-Yang and

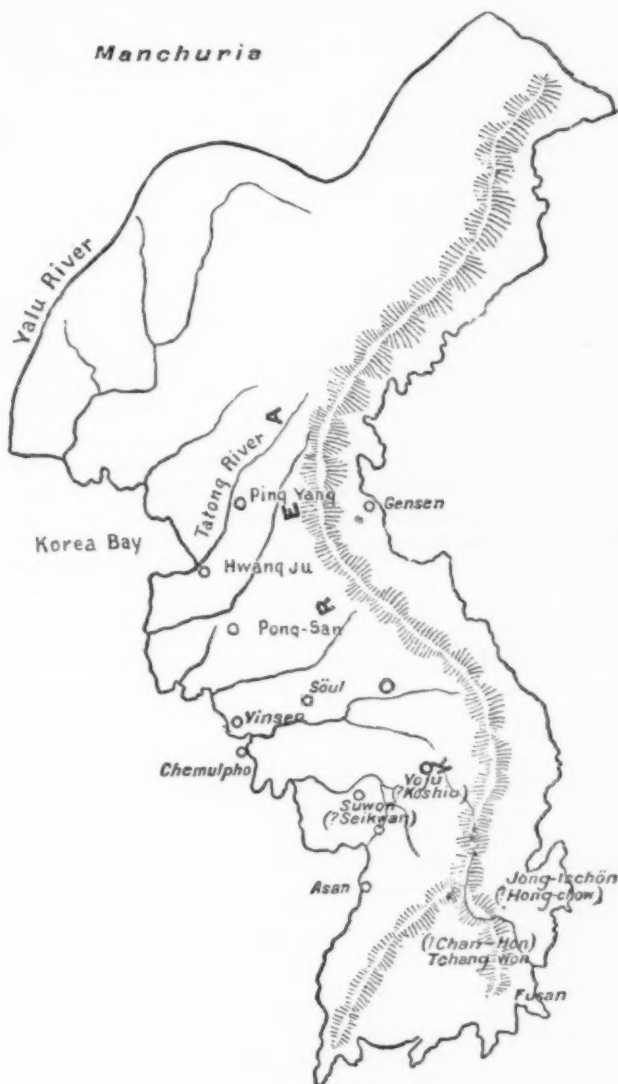
those landed by Admiral Ting's transports, has withdrawn to a place called Chu-Lieu-Cheng or Ngan, 30 miles west of the river, and so much nearer Mukden.

DISCUSSION OF THE CAMPAIGN, BY COLONEL F. MAURICE, C.B.

(From the United Service Magazine, London.)

I think that it is possible from the information we have now received to clear up to some extent the situation in Korea. We have some letters both from Chemulpho, Söul, Yokohama, and Shanghai, which fairly establish certain facts. Starting from these, I do not think it is difficult to interpret some of the confused telegrams. Much of the confusion arises, I think, from the attempt to produce in print phonetically names which have been differently rendered in our maps from a differing reproduction of the sounds of the Korean language. As it has taken me some labor to make out the facts to my own satisfaction, I may perhaps be able to save others trouble by telling the story as I believe it to have run. Though some errors may require subsequent correction, it will, I think, be useful to those who have relations with the East, and interesting to most readers, to have from time to time a summary of the best news that has reached us. It requires perhaps a little experience of the necessary conditions under which troops act to be able to distinguish between what is at least highly probable and what is altogether impossible.

It will be remembered then that in the spring a rebellion had broken out in the southern provinces of Korea. The king's troops were defeated by the rebels. Some of the soldiers appear to have fraternized with the revolted people. Altogether the situation became so threatening that the king's government appealed to the Emperor of China for assistance. It was believed in China and reported to Yokohama that the Chinese intended to send 10,000 troops. In fact, however, a force of only 2000 men was landed at Asan. They appear to have arrived at Asan, or Gazan as it is also called, early in June. By June 22d, however, a correspondent writing from Yokohama states that up to that date these troops had been unable to leave Asan from their entire want of provisions for a campaign. As soon as the Japanese government heard of the despatch of these troops they promptly despatched a force which at first numbered between 4000 and 5000 men to Chemulpho. They notified to the Chinese government their intention to despatch these troops. They claimed that, under the treaty of April 18, 1885, each government was bound to notify to the other the despatch of troops to the country, and each country after such notice was at liberty to send them. They announced that as China, apparently without notice to them, had already despatched troops to suppress the rebellion, they were now despatching their force to watch over their interests in Korea. Of the landing of these troops we have a very interesting and complete account, which was sent to the *Times* by a thoroughly independent authority. He tells us that nothing could be more complete than their equipment; that they maintained admirable order, and that they in a short time occupied practically without opposition Söul, the capital. Now, as the great mass of



The names given by Reuter are put in brackets. The places I assign them in the article are those of the German map published by Flemming at Glogau, or by our own Intelligence Department map.

any Chinese army which is to enter Korea must cross the northern frontier and approach by land, it is evident that this force lying between Insen or Yinsen, as it is variously rendered, and Söul, lay between the Chinese forces to the south at Asan (or Yashan) and their friends in the north. Now as the distance from the Chinese frontier and Söul is at least 200 miles of very difficult country, as the Chinese army gathers slowly and must have some sort of equipment before it starts, it is obvious that, as long as this detachment of Chinamen at Asan were not reinforced by sea, they would be completely at the mercy of the much better equipped and much larger force of Japanese lying to the north of them at Yinsen and Söul. On the other hand, if China poured in troops into Asan they might become a very serious danger to the Japanese in and around Söul. The Japanese continued steadily to pour in troops at Chemulpho. It was during this condition of affairs that the *Kowsing* incident took place. We do not know accurately how many Chinese troops were embarked with this expedition. It is said that 1100 Chinamen were sunk in the *Kowsing*. Apparently very few, if any, of the transports succeeded in reaching Asan. Most, we know, put back to the Petcheli Gulf.

Now what would naturally be, under these circumstances, the objects of the Japanese commander in Söul and the Chinese commander in Asan? It may, I think, be safely assumed that the Japanese forces, whatever their numerical strength may have been by the latter part of July, were as a fighting force greatly superior to the Chinese in Asan. It is highly improbable that the Chinese after such a disaster as that to the *Kowsing* would attempt to send any more reinforcements by sea until they were able to dispose of the Japanese fleet. Therefore the Chinese force at Asan must have felt itself to be cut off from all hope of reinforcement, except by the march of the Chinese army from the north. Under these circumstances the object of the Chinese commander, if he found himself able to move, would be if possible to slip past the Japanese force and move northward. It would be far too dangerous for him to attempt to carry out the mission with which the Chinese troops had been originally entrusted, that of suppressing the rebellion in the south. To do so would be to expose his ill-equipped army to be caught under most disadvantageous circumstances by the easily mobile Japanese force among a hostile population. Therefore, he would have to consider how best to escape northwards. Clearly to pass directly north, between the sea-coast and Söul would be unwise. The Japanese, as we are told, have carefully intrenched the position they have taken up between Söul and the sea. Therefore his one chance would be to pass in a north-easterly direction round Söul and endeavor to avoid the Japanese. As clearly the object of the Japanese commander would be to prevent this attempt and to destroy this isolated force of Chinamen before the great Chinese army from the north could arrive. On the other hand, if the Chinese commander did not find himself sufficiently equipped for so long a march he would necessarily endeavor to protect his position at Asan by taking as strong a line as he could at a moderate distance from Asan and fronting the Japanese. In either of these cases a glance at the map furnished by the Intelligence Department, and to be obtained from Stanford,

will show that a place which is there spelled Suwon would probably be occupied by the Chinese army as soon as they were able to march out of Asan.

Now we have had reports of two engagements, one said to have been about July 27th or 28th in which the Chinese are said to have defeated the Japanese with great loss, and one on July 29th in which the Japanese are said to have totally defeated the Chinese and taken what is called in the telegram Seikwan. This place I take to be the Suwon of our map. The difference in spelling is not at all more than one is accustomed to in barbarous countries. It is scarcely greater than the variations of reading given in this map for one place, Inchon, Yenchuan, Yinsen. Further, the Chinese are said to have fled in the direction of Koshui. This I take to be Yo-Ju* of the map. The Japanese are then said to have captured Asan or Yashan. That is to say, that they pushed on and seized the harbor where the Chinese had originally disembarked. Discredit was thrown on this report because the Japanese commander reported only that he had inflicted a loss of 500 men killed and wounded. I think that this view must have been due to a misconception of the facts. What we are here dealing with is not a fight with the Chinese army of the north but with the body, originally about 2000 strong, which was sent to suppress the Korean rebellion. It may have been somewhat strengthened by the transports which escaped after the sinking of the *Kowsing* on July 25th, but as the fighting took place so soon after that event it seems unlikely. In any case a loss of 500 for such a body would be a very heavy one, and may fully account for the alleged dispersion of this force. On the other hand the fact that the Chinese "fled" or retreated towards Yo-Ju would imply that whatever remained as an active army after the fight continued its endeavor to work round the Japanese northwards. It ought to find great difficulty in escaping. It would have 200 miles of very bad country to traverse with the Japanese army on its flank for great part of the distance.

It is of course impossible to say what policy the Japanese leaders may follow, but if they leave to the Chinese the difficult task of advancing upon the position they have taken up at Söul, holding only the passes in the mountains, then I hardly see how any very serious operations can take place between the main Chinese army and the Japanese till nearly the end of the season. A Chinese army moves very slowly; the country is almost without roads and over mountains difficult to pass. The gathering of the Chinese army on the frontier cannot yet have taken place and must be a slow operation. Transport of some kind must be provided for ammunition at least, and even the Chinese soldiers cannot live upon the food they will find.

Meantime it is clear that the Japanese fleet has not been making stupid attacks upon fortified harbors but has been searching for the Chinese fleet in order to bring it to action. Apparently whilst it was searching for the Chinese fleet at the mouth of the Petcheli gulf a portion of the Chinese fleet was searching for it within the gulf itself. On one occasion at least the Chinese fleet, according to Chinese reports, declined an action. Everything

* Jo-tu-ju in Flemming's German map.

shows that, so far as transport to the chief ports of the Korea is concerned Japan has complete command of the sea. With regard to reports of Japanese landings at Gensan and Fusan, it is to be remembered that these ports are not closed by ice during the winter while Chemulpho is. Therefore if the Japanese, who have become very skillful engineers, could, during the summer months, improve the communication, and perhaps construct a light railway from Fusan to Söul, they would indefinitely strengthen their hold upon the country. Again, if they propose to carry on operations against the Chinese in the northern part of Korea, the port of Gensan would be much more available than either of the others. They may be only strengthening it with a view to the future. If they feel themselves strong enough to advance against the Chinese before the latter can effect their concentration on the frontier, they may have arranged to combine their operations from Chemulpho and Gensan with the advantage of the greater facilities for rapid disembarkation supplied by two harbors.

A report from the "general commanding in Korea" was published by the Japanese government which spoke of a victory at "Chan Hon" and of the Chinese retreating on "Hong Chow," "probably with a view to taking advantage of the Korean boats in the neighborhood of Gunsan" (no doubt our Gensan). The *Times* subsequently announced that they had received information that these were only the Japanese names for Seikwan and Koshu. That may be so. In that case it would imply that the general considered that the retreating Chinese had no choice but to attempt to cross the mountains to the eastern coast where they would probably be anticipated by the Japanese from sea. On the other hand near the harbor of Fusan there is a place spelled in the German map Tschang-won which looks very much like the same place as Chan-hon, and to the north of this there is a place spelled Jong-tschön which may be Hong-Chow. I am not, therefore, altogether convinced that this may not refer to an altogether different series of operations. It is not impossible that some Chinese troops were landed at Fusan for the suppression of the rebellion in the south, or may have landed from some transports which escaped after the disaster to the *Kowsing*. In any case none of these are operations against any but detached and isolated Chinese forces. The main army may possibly have pushed a few detachments across the northern frontier, but it can as yet be in no condition to invade Korea in any serious force and equipped for a campaign.

I give a slight sketch containing only the places I have named to indicate the situation as I understand it.

Postscript (Wednesday Aug. 22, afternoon).—The above was in print prior to the reception of the news of Wednesday afternoon. It will be seen that that news confirms my impression as to the nature of the movement of the Chinese from Asan. I imagine that the report of the present engagement represents a skirmish of no very considerable importance between an advanced post of Japanese pushed forward to occupy an advantageous post and a force of Chinese similarly pushed forward to seize it. In any case it does not represent a "battle" between the two armies, which for

the reasons assigned in the article cannot yet have taken place. It is exceedingly possible that a portion of the force which was at Asan has made good its retreat in the way I have suggested in the summary that they would probably attempt. Getting into the mountain region and slipping round the Japanese would probably be all the more feasible, because the Japanese force from Söul seems to have turned off at once toward Asan to seize the post. If it be true that the Chinese have succeeded in enlisting Korean support, that fact would also help to explain their escape round the Japanese position. In all probability the Japanese commander had calculated upon the assumption that the rebels, whose insurrection the Chinese had come to suppress, represented the general feeling of the Korean peasantry. If that has not proved to be the case, but on the contrary, whilst some have certainly enlisted with the Japanese, others have joined the Chinese, it is obvious that in a mountainous district the extent to which their movement northward would be facilitated can hardly be exaggerated. In that event it is exceedingly probable that the Chinese from Asan have succeeded in joining some better equipped portion of the Chinese army from the north, pushed forward expressly in order to give them a chance of escaping.

That they should in that case have fallen with great advantage upon the Japanese outpost seems exceedingly likely. More than that I do not think we have reason to assume. It is to be noticed, however, that the Japanese are said to be reëmbarking from Fusan. That rather confirms my impression that some of the operations mentioned in the early telegrams, as of July 29th, may have taken place on that side. They may now be reëmbarking because they have cleared out of that region the Chinese force against which they were engaged, so that any operations for improving communications with Söul for the time when Chemulpho is closed, may now be safely guarded with smaller numbers.

II.

"Such combinations never come off." That would undoubtedly have been the verdict of Napoleon if one of his marshals or one of his reigning brothers had proposed to him such a scheme as that by which Field Marshal Yamagata had destroyed the army at Ping-Yang. For such violation of "all the rules of war," Von Moltke was in the 1866 campaign condemned by all those who think that the experience of war in the past can be reduced to a set of formulæ; and it was, for a long time, difficult to get the attention of many of our best soldiers sufficiently directed to the changes which have been introduced into war by modern conditions, to see that Von Moltke was right. Nowadays it is, I think, almost only those who do not read and who know nothing of war in the past, who doubt the nature of the change which has taken place, though a few, chiefly civilian writers, like Mr. O'Connor Morris, who do read but do not understand, fail to realize that Von Moltke was condemned, precisely as Napoleon was condemned in his own day by the Macks, because both of them, like Mirabeau, had "swallowed formulæ"; because both of them had studied the past not less thoroughly but more thoroughly than their critics, and had adapted its experience to new conditions.

It will be seen from what I have said, that, as I think, the handling of the Japanese troops shows that their leader has profited by all the most recent experiences of modern war, and has used them in a way which would make the reputation of a European leader. The only phrase which I should wish modified in the very admirable report which was furnished by Reuter of a short conversation I had with Mr. Emmet is, that in which I said that Yamagata's tactics "would not have disgraced a Western general." I think, as I have now put it, that they would have "made the reputation" of a Western general. In order, however, to do him justice, it is necessary to take up the story of the campaign from the point at which I left off in my narrative last month. I then carried down the story to Wednesday, August 22d.

On August 22d, news had come in of what was described as "a great Chinese victory," in which the Chinese had driven in the Japanese forces from Ping-Yang to within fifty miles of Söul. Further, it was reported that certain Chinese cavalry had utterly routed a very large force of Japanese infantry, who had landed at the mouth of the Ping-Yang inlet. My object then was to point out that it was impossible that a battle could have by that date taken place between the main Chinese and Japanese "armies." Obviously, it was an affair of outposts. Nevertheless, it is clear that in this, as in many, though not all, of the wild reports that have reached us, there was a substratum of truth.

There never has been a series of reports, the reception of which more forcibly illustrated the saying of the song, that

"Little fools believe too much,
And great fools not at all."

Some writers have penned enthusiastic leaders upon the wildest rumors started by the panic of Shanghai. Some have aired their wisdom by professing disbelief in most accurately written information from the spot. For, in fact, we have had many data to go upon, and these, as they have accumulated during the month, and lead up to the final catastrophe both by sea and land, I propose now to summarize. It will be seen that many of even the figures given us correspond very closely with those that are reported employed in the final engagement.

A report which appeared on September 3d, recorded, in corroboration of previous information, but evidently with much more complete knowledge, that on August 13th, 5000 Chinese troops had been pushed on to Ping-Yang and had thence driven out what was obviously a mere Japanese outpost. The same message recorded how five days later 17,000 more Chinamen had arrived, raising the total force in and about Ping-Yang to about 22,000 men. It was further reported that on that day a Japanese force had landed at Ping-Yang inlet, and the altogether incredible account of the success of Chinese cavalry against a large force of Japanese infantry was recorded. From that point the records were conflicting. Some of them said that the Chinese force fell back when the guns of the fleet at Ping-Yang inlet had opened on them, others that the Chinese general had subsequently advanced upon Hwang-Ju at the mouth of the inlet and captured it, and that the Japanese fleet had drawn off. At all events it is clear that either the Jap-

anese then effected their lodgment at Hwang-Ju, the Chinese cavalry having withdrawn after merely driving in some advanced parties, or that the Japanese occupied it as soon as the Chinese forces had fallen back from the inlet, because it was impossible for them, with such forces as they had available, to hold the whole distance between Ping-Yang and Hwang-Ju while they were at the same time pushing South.

As regards the column from Chemulpho and Söul, as representative of the general condition of the Japanese forces in Korea, we had in the *Times* of August 28th a most excellent description from a writer on the spot dating from Söul on July 10th. He was evidently by no means friendly to the Japanese, but he recorded how admirably equipped they were as a modern army. He told us how they possessed accurate maps of the Korea with all the roads excellently described, with the passages of the rivers and their width and varying depths noted; how they possessed pontoon trains adjusted so as to be available for just the width they would require for passing each of the rivers. Though he does not mention it, we know, from earlier sources, that as part of this equipment they possessed an excellent field telegraph service. Now it is not too much to say that on the possibilities of the field telegraph larger combinations, such as were carried out against Ping-Yang, nowadays depend. It is this and the telegraph generally which have caused those combinations to "come off," which, as Napoleon truly said of his own time, never did then come off. If Field-Marshal Yamagata had undertaken to combine operations from three distant ports such as the Ping-Yang inlet, Chemulpho and Gensan, without the aid of the telegraph it is tolerably certain that they would not have "come off." We may be tolerably sure that he did not do so. One point, the humor of which appears to have been unnoticed, deserves attention. It is recorded in the reports from Söul that *within ten hours* of the victory at Ping-Yang, the telegraph was completed to a considerable distance in *rear* of the army and that it was then being rapidly carried into Söul. In other words with an ample telegraph service under his command, the one direction in which Yamagata did not use it was that in which dangerous reports as to his movements might travel. Admirably has he veiled himself in secrecy up to the moment when secrecy was no longer necessary. We may be sure that the telegraph troops had ample occupation in establishing communication with the two columns from Gensan and Hwang-Ju.

On the evening before the news of the battle arrived I was talking over the situation with a brother officer, and I found that I a little startled him by saying: "If the reports from the front, which I take to be exaggerations with a substance of truth, had not indicated Chinese success, I should have thought that Yamagata did not know his business as well as I now think that he does. I should suppose that now that he is reported to be moving forward, his movements will be rapid, which they could not have been had he had at the front such forces as would have prevented the Chinese from driving in his outposts, for that is evidently what they have been doing." As my prediction was fulfilled, it may be worth while to make intelligible the apparent paradox. Every non-military man can easily understand the point of it with a short explanation. It depends on a principle on which all

our wars in such countries as the Korea have to be conducted. It applied especially to the 1882 campaign in Egypt, and is described in my history of that campaign. It applied on the Nile, and it applied both in Abyssinia and in Ashantee. It would be of great advantage if as many Englishmen as possible would be good enough to follow me, because ignorance as to its nature leads to very mischievous criticism of our generals in the field, and when the successful result of a wise policy is announced, the previous criticism is forgotten in the excitement of triumph, which the many then attribute to luck or sudden inspiration amending previous dilatoriness. Hardly any one realizes that the criticism is proved to have been fatuous. As I have been trying for years to get this matter understood, I should hardly insist on it now had I not lately found that among a body of very intelligent officers with whom I was talking, not one had a glimmer of the truth.

The fact that an army "moves upon its belly" is generally known, though it is not understood. Translated into hard fact it means that a general can only move forward successfully with his army when he is assured that he will be able to supply it during its movement with ammunition and food for man and beast. These must be not at his Chemulpho, the point on the coast or elsewhere where he can easily get as much as he wants, but close to the very point where he intends to fight. Now in civilized countries like France and Germany, not only do great supplies of food exist, but they are concentrated in so many centres at towns, villages, etc., that cavalry moving ahead of the army can, as they did in the war of 1870, have provisions collected in advance, which will be ready on the arrival of the several parts of the army. Furthermore, railways can from the rear bring up ample supplies of ammunition. But in the case of a move across a desert, as the extreme case, or through an ill-cultivated, uncivilized country like the Korea in a secondary degree, this action is impossible. Something must be done to take its place. Large means of transporting food and ammunition must of course be provided, but that is not enough. Suppose there be with a force of 10,000 men transport sufficient to carry forward all its wants for six days, that represents an enormous amount of transport which it will take a very long time to land from ship-board. But yet if the 10,000 men have to move forward 150 miles, the distance from Söul to Ping-Yang, it will not be enough to enable the army to be fed near Ping-Yang. For probably in such country the transport animals will not be able to traverse that distance under at best eight or nine days, and after they have delivered up their food they will have to go back to Chemulpho, another eight or nine days, to put the whole case moderately, and to return again before they can deliver another pound of food to the troops. Therefore, movement under those conditions would be starvation.

If, however, instead of doing this the general sends to the front only a small portion of his force sufficient when well protected to cover the movement of his transport and the accumulation of his supplies, the whole case is changed. The greater part of his force is fed easily at Chemulpho, easier the nearer he is to it. It will require little or no transport whilst there. The great bulk of the transport can be employed in accumulating stores in his front just as the cavalry would have done for him by requisition in a

civilized country. Of course it becomes for him a very nice calculation to ascertain how few men he can afford to leave in charge of his supplies. If he puts too few there the enemy may pour down upon the very accumulation he is making. But he can well afford to let the enemy achieve "great victories" of the kind we have heard of, to have "wounded men brought back into Sŭl," to have these "victories confirmed by Korean report," as we heard that they were, so long as this means that his outlying posts have been driven in, so long as the enemy does not succeed in reaching his depots of supply. What at all events is certain is that the fewer men he can afford to keep at the front, the more he can keep back as near as possible to Chemulpho, the quicker will be his accumulation of supplies, and therefore the more rapid and effective will be his movement when it does take place.

I have no doubt at all that that is the history of the chief work during the last month in the Korea on the Japanese side, so far as the column from Chemulpho is concerned. In different degree the same thing is true of the columns from Gensan and from Hwang-Ju, though the distance from Hwang-Ju being so much shorter, the movement would, so far as supply is concerned, be much easier and may have mainly depended on boats up the Tatong River. It would require much greater caution to advance on this side till the last moment because of the proximity of the enemy. On the Gensan side, concealed as the movement would be by the mountains, the chief difficulty and delay must have occurred in gathering force on the western side of the mountains, as the troops emerged from the meagre bridle paths.

To return now to the report of September 3d. On the same day that we had some 20,000 or 22,000 Chinese accounted for from Chinese sources as in the neighborhood of Ping-Yang, we were informed from Nagasaki by independent report that 74,000 Japanese in all had landed in the Korea. Some fraction of these has undoubtedly been employed in the neighborhood of Fusan. I still incline to the belief that the Japanese there have been engaged in improving the communications between Sŭl and Fusan with a view to the winter when Fusan will be open and Chemulpho closed. Probably the disturbances have been caused by natives attempting to interrupt the working parties. Large deductions must be made from the fighting columns for supply, the guardianship of the three ports and the lines from them to the army. I should be inclined to put for various reasons the three columns at a good deal less than 20,000 men each; because it is usually safe to expect in war that the numbers available will be much less than any apparently strict calculation would make them. Still victors do not usually care to exaggerate their own numbers, and, as the Japanese say they were three to one at Ping-Yang, it is obvious that nearly 60,000 men, in all, out of the 74,000 embarked from Japan may have been available. I incline to accept the Japanese statement as to the numbers captured, because an army surprised at night and surrounded on all sides would not be likely to escape in large numbers. The fourth which the Japanese say managed to get through is quite as large a number as I should have expected. Seeing that the Chinese themselves claimed to have 20,000 at

Ping-Yang, I think everything confirms the Japanese estimate, nor do I see why they should in such an attack have suffered more than they say that they did. Panic-stricken men are not good shots at night and do not usually in any form make much resistance.

On the other hand it is of course quite conceivable, considering the meagre nature of our information at present and the uncertainty of the sources from which it is derived, that the whole operation may have been greatly exaggerated. The curious coincidence between the numbers reported on the Chinese side, too long ago to have any connection with the present statements, and the numbers said by the Japanese to have been dealt with when they attacked Ping-Yang, looks at least like corroborative evidence of their truth. We know nothing of what Chinese forces may be gathering in Southern Manchuria and on the Yalu. Their movements are sure to have been slow, and the difficulty for them of collecting transport and supplies must be even greater than that of collecting men. Still it is hardly possible, after all we have heard from those who have known the Chinese army, that a force of 20,000 men, if it was so many and it may have been much less, can represent more than a body which they pushed on in advance, very unwisely no doubt, on the principles I have indicated. Its hopeless defeat must pave the way for the advance of the victorious Japanese general upon the Yalu River, but I hardly fancy that he will be able to move far into Manchuria without a fight with some considerably larger force.

It is clear from the latest reports that we have received, that the portion of the Japanese fleet engaged in the attack on the Chinese at the Yalu mouth, was not so large as the Chinese assumed. Not seventeen ships, as the Chinese asserted, but nine cruisers, and two fast converted transports, engaged twelve war-ships, and four torpedo-boats employed in escorting six transports. As the Japanese claim, six smaller fighting ships were also with the Chinese. I cannot see how there can be any doubt that the engagement is for all practical purposes an enormous gain to the Japanese both in prestige and in its effect on the future of the war. The 6000 or 7000 men whom the Chinese landed will be an insignificant addition to the troops whom the victorious Japanese army will now have to deal with on the Yalu. The Japanese fleet will certainly be able without fear to coöperate in the movement of the army along the coast-line and to insure their adequate supply. The Japanese fleet was notoriously weaker than the Chinese in the fact that they had only cruisers while the Chinese had at least five battle-ships. After successfully watching and protecting the landing of 74,000 of their own troops in Korea without interference from the superior fleet; the moment the Chinese attempted to carry out the same operation they pounced down on them under the very conditions which we have been taught by all naval authorities to regard as the most favorable for an inferior fleet. They can undoubtedly refit and increase their fleet more rapidly than the Chinese, not only because they have four dockyards and the Chinese only one that can be compared with theirs, but because they have trained workmen of their own of admirable skill while the Chinese depend almost entirely on foreign assistance.

Nevertheless the talk of an advance upon Peking now that the winter is approaching seems to me simply absurd. Obviously the advance first on the Yalu, and then if time permits on Mukden, is the right course for the Japanese general, and to that he is as obviously settling down. I can hardly imagine that the weather will now permit of his reaching Mukden this season. It is noteworthy that the Japanese government has allowed a telegram to be published announcing that their army is on the road to Mukden. An ingenious writer has suggested that the very fact of this announcement suggests a ruse intended to conceal a movement by the Pechili Gulf upon Peking. I assign a different reason for it. The opposition in Japan has been knocked out of time by the popular enthusiasm for the war. In order to overtrump his successful rival the leader of the opposition has endeavored to appeal to the passions and vanity of the people by urging that no "mere victories in the field will be sufficient. Peking must be taken." The manifest motive is to suggest what he well believes to be an impossible attempt. In order to prevent the people from clamoring for a dangerous expedition it seems a natural policy to enlist their enthusiasm for the destruction of the sacred city of the Manchu dynasty. That will be a sufficiently popular reason for carrying out a sound military policy.—*September.*

Military Notes.

A NEW CARBINE CARRY FOR THE CAVALRY.

A NEW carbine carry, the invention of the Inspector-General of Cavalry (Lieut. General J. Keith Fraser, C. M. G.), has been approved by the Commander-in-chief and the Secretary of State for War.

A sealed pattern of the contrivance has been deposited with the Inspector General of Small Arms, and issues of the new kind will shortly be made to the troops. Since the time when it was decided that a cavalryman's sword should be carried on his saddle there has been an ever-present risk of his being suddenly divorced—especially in moments of the greatest urgency—from both his sword and his carbine, the latter of which has in this country for years been carried in a leather bucket or case on the off side of his saddle—by the failure of his horse to traverse an obstacle at which it might be put, or by the rider being thrown. In order to overcome this danger, the Inspector-General has designed a short socket or sheath, attached to the off side of the saddle in rear of the rider's leg, in which the muzzle of the carbine rests. The mouth of the socket is widened or belled out, and is protected, in order to preserve its shape, by a band of iron bound with leather. The weight of the carbine is borne by the horse, but attached to it is a leather sling which is placed *en bandoulière* over the left shoulder. In order to fire the carbine it is not necessary to detach the sling in any way. It is obvious that, should a cavalryman lose his seat, or be injured and fall to the ground, he always will have with him a carbine with which to do something in his own defense, or alarm his comrades should he suddenly be taken whilst on outpost or other duties of an "open" nature. Both ends of the sling are attached to the carbine, one by a swivel-spring hook which catches on to a staple bound to the lower part of the breech-action with an iron band, which passes around the piece in a line with the bottom of the trigger guard. The other end of the sling, after passing round the bar of a staple sunk in the right side of the butt one inch from the heel-plate, is fastened with a metal stud. The normal position of the butt when the man is mounted is about the centre of his back. Methods of carrying carbines or rifles have exercised the minds of military men from the time they were first used in the mounted services, and possibly it is not too much to say that but few things in relative connections have given greater concern. General Keith Fraser's plan has many points strongly in its favor, but it remains still to be proved in actual work whether men will be able, without serious incommoding, to stand the jar of the carbine against their backs which the movements of their horses must necessarily entail.—*United Service Gazette*.

THE .303 LEE-METFORD RIFLE.

Some months ago the *Pioneer* of Allahabad drew attention to certain curious results obtained with the powder on the ranges, it being alleged that at 800 yards and upwards the bullets made "patterns," showing that they must have struck the target sideways. It was, we believe, discovered that the ammunition used on these occasions came from private firms at home. It was, and is still, a puzzle how a bullet, which apparently had hit the canvas target sideways, could have travelled the distance and reached the object aimed at. A series of experiments was ordered with black powder and cordite, and the result was interesting. The targets failed to show that any bullets struck sideways, but a large percentage of the holes made were found to be oblong in shape instead of round; they resembled the holes made where one bullet has struck half within the circle made by another. The conclusion arrived at was that the long thin bullet of the .303 rifle is so easily affected by currents of air that it "wobbles" in its flight, travelling point foremost the whole time, but rotating around its axis very irregularly.

Experiments have recently been made in India as to the destructive effect of cordite on the barrels of the .303 Lee-Metford. The "life" of a rifle may be taken at ten years on an average, 300 rounds being fired annually, or 3000 in all. It is of the highest importance to discover whether the Lee-Metford will remain serviceable up to this limit. In England over 2000 rounds have been fired without any serious damage being done, the rifle actually shooting better after the first 500 rounds, presumably owing to the rifling "setting-up" the bullet less suddenly after the sharpness of the grooving has been slightly reduced. According to the statements of the *Pioneer*, the Indian experiments show that after 2200 rounds had been fired the two new rifles used showed no signs of wear and tear in any particular; after 3200 rounds the muzzles were found slightly enlarged. Yet another 1000 rounds were fired, and the rifles were declared to have become unserviceable, as regards accuracy of shooting, after having fired 3150 and 3450 rounds respectively. The two rifles when examined showed that the rifling was much worn, and that a peculiar enlargement had taken place in the barrels. The test applied as regards the latter is to insert a .305 plug, the barrel being .303 bore. At the breech end of the barrel in each rifle this "rejecting-plug" was found to pass up $1\frac{1}{4}$ inches beyond the chamber in which the cartridge is exploded; at the muzzle end the plug entered 2 inches and $7\frac{1}{4}$ inches respectively. The chambers themselves were in no way worn, and the mechanism was in perfect working order. Here, then, we have proof, as our Indian contemporary points out, in the first place that with cordite ammunition the Lee-Metford will fire 3000 rounds at least without its accuracy of shooting being affected, but a few hundred rounds more serve to ruin the barrel. The enlargement immediately beyond the chamber is easily enough understood, for it is there that the gases set free by the explosion of the cordite exert their greatest expansive and erosive force, but why should there be the enlargement at the muzzle end? There is, it will be noted, a section of the barrel in which no enlargement takes place. As the *Pioneer* puts it: "Cordite, it will be seen,

is not perfect, but neither is any other smokeless powder. It gives splendid results with the Lee-Metford, as our soldiers now know, and if it does ruin the barrel of the rifle after 3000 rounds, that gives a ten years' life to the weapon; and government can provide, at comparatively small expense, new barrels in place of those whose shooting powers have deteriorated."—*Army and Navy Gazette*.

GERMAN ARTILLERY PROJECTILES.

(From Loebell's Annual Reports.)

In the course of the past year the German field artillery has received a new set of firing regulations. * * * The principal projectile is the shrapnel C/91. It has a very thin wall and, consequently, a cavity of great capacity, the material is steel and consists of the cylindrical body and the base which is screwed on. It is filled with bullets of hardened lead the interstices between which are filled with a smoke-producing composition giving favorable conditions for observation of the burst and, at the same time, keeping the bullets firmly in place. The bursting charge is placed as heretofore. The projectile gives about 300 bullets and fragments. It has the combination fuse C/91 all of whose parts are assembled in one body which is then fixed to the projectile. The shape of the fuse corresponds to that of the projectile so as to overcome better the resistance of the air. To prepare the fuse for firing requires the withdrawing of a pin, and, for time fuse action, the scale ring must be attached which is graduated from 300 to 4500 metres. Even after the removal of the pin the fuse still possesses such safety of transport, that the guns can be manœuvred loaded. Against covered objectives the field artillery uses the torpedo shell, single walled and of great thickness of metal, which is steel. The charge, shell charge C/88, is a special composition inclosed in a separate case to prevent chemical action from the touch of the metals of which fuse and projectiles are made. The number of fragments, of the most varied size and form, is very great, about 500. The fuse of this shell is likewise a combination fuse, which, however, requires a special detonating primer to produce detonation of the bursting charge of the shell. Without it, it would be impossible to secure with certainty the detonation, *i. e.*, the complete decomposition of the substance composing the charge in an infinitesimally short time and under the development of enormous heat. Without it the less forceful explosion would take place. The fragments of the torpedo shell become mainly effective by their lateral spreading, by means of which objects close behind cover are struck, depending on the point of burst in the air. If the burst takes place on impact, the fragments fly in all directions. By the side of the shrapnel as principal projectile, and the torpedo shell as auxiliary projectile, there figures for special cases the canister of which a limited supply is carried. Shrapnel and torpedo shell have about the same trajectories so that the same elevation can be used for both. The service of the gun is simplified also by the combination fuse, as is ranging by the time or percussion fuse owing to the likeness of the trajectories. The ammunition of to-day has brought about a simplification as compared with former ammunition, and the supply of ammunition is also simplified.—*Militär Wochenblatt*. C. R.

INVENTIONS.

Gruson Works, Magdeburg, have constructed an automatic firing brake for guns aimed by means of a shoulder piece like the infantry rifle. The brake protects the gunner from the recoil of the gun when discharged.

Extensive experiments have been made in Austria with poles for artillery carriages of birch, ash, and hickory wood, and those made of Mannesmann tubes. The ash pole was preferred, the Mannesmann pole being too heavy. Krupp is said to make very good poles from rolled steel welded at the seam.

It has been proposed in France to arm the independent cavalry divisions with machine or quick-firing guns.

A Norwegian, Alessio Radir, has discovered an alloy by means of which many metals, especially aluminum, can be welded and soldered.

The company of Cockeril, in Seraing, near Liège, uses a press for working, or rather condensing, steel, instead of hammers. As advantages are mentioned: Saving of time and fuel, saving of metal and work of greater uniformity. The power operating the press is water under a pressure of 300 atmospheres.

The American Fesenden prophesies a greater future for glucin, a metal first produced by Woehler, than for aluminum. Glucin is white as silver. Its power of resistance as compared with iron is as 1350 to 750. A thread of glucin 1 mm. thick will bear a weight of 6.5 kilograms. As yet glucin is too expensive to compete with aluminum.

A Mr. Fred. Allard, of Lewis, near Quebec, Canada, has, after 30 years of experiment, found the means for hardening copper. He has manufactured tools, wagon springs, etc., from forged copper which possess the hardness and elasticity of steel without breaking. It is hoped that the new metal will lend itself to the construction of arms, electric apparatus, etc.

In Thun, Switzerland, extensive experiments have been made with gun-cotton powder, called white powder, which gave good results, particularly as regards safety of transport and lack of sensitiveness when struck by rifle bullets in the ammunition chest.

The powder factory of W. Gutler in Reichenberg, Silesia, uses gun-cotton in connection with nitrized carbo hydrous materials, instead of gun-cotton alone, as a base in the manufacture of smokeless powder. The resulting mass congeals to the hardness of bone, may be pressed, rolled, bored, smoothed, cut, turned, and with the use of artificial coloring matter made into ornaments. For these reasons the stuff is called plastomenit. It is patented in Germany. It does not affect rifle barrels as do other smokeless powders, stands storage better, and unites to great power the quality that the power can be regulated, and has the so-called flexibility of the old black powder.—*Militär Wochenblatt. C. R.*

Reviews and Exchanges.

Isabella of Castile.*

OUR review of "Isabella of Castile" in the September number was a very brief one, and we take pleasure in introducing the following letters which have been received, among many others, regarding this interesting volume.

ST. PAUL, AUGUST 16, 1894.

Dear Sir:—I beg leave to say that I have received a copy of your book "Isabella of Castile." I thank you very cordially for the gift. I have read the book with interest and profit. It is short enough to invite a busy man to go through its contents, and long enough to give a very good idea of the heroine and her times. The style is dramatic, in full accord with the temper of the heroine, and the interest of the reader is kept up from the first to the last. The book deserves and will receive a large sale.

As to the special point of Isabella's treatment of the Jews and heretics, you have taken the proper view—judging her from her own period and her immediate surroundings. What Isabella did four hundred years ago, she would not do to-day, nor would the condition of thought and social life to-day allow a suggestion of actions, which in her times came as it were naturally.

Perhaps you return too often in your pages to the matter, leaving the impression on your readers that, all things said, Isabella needs merciful consideration, and, can, even with it, be scarcely pardoned. An explanation given, strong and forcible, once for all, would have sufficed. Isabella was more lenient by far than other sovereigns of her own, or later periods, and in Spain the situation was singularly exceptional. The Spaniards had been fighting during centuries for independence from foreign domination. The Moors were enemies, whom it was hard to treat kindly, who could not be trusted, even when professing submission. The "heretics" were often so-called converted Moors, who relapsing into religious "errors" relapsed, it was thought, into national rebellion. The Jews of Spain had no country and sympathized often with the Moors. Heretics from the North smacked of albigensianism, which included revolting civil crimes. Isabella, as I said, was peculiarly situated, and, on the whole, did wonderfully well. Of course, writing of her, we are not concerned in any manner with the Inquisition, or of other periods of history. A few expressions in the book might have been altered. Catholics resent being called "Romanists," and the words "superstition" and "bigotry," taken in their usually accepted meaning, could scarcely be applied to Isabella! "Superstitious" Isabella was not, while she was intensely Catholic. Her faith, from a Catholic standpoint, was enlightened faith, and it cannot be criticised without the Catholic faith being criticised—which, of course, you had no intention to do.

I am frank in my criticisms, because there are so few to be made, and the general spirit of the whole book is so fair and liberal, that I know my remarks will be taken in good faith. The book is delightful and one worthy of your pen.

Sincerely, etc.,

GENERAL O. O. HOWARD.

JOHN IRELAND.

* *Isabella of Castile*. By Major General O. O. Howard, U. S. A. Funk & Wagnalls' Company, New York. 1894.

GREAT COMMANDERS—GENERAL THOMAS. 1291

FARIBAULT, MINNESOTA, JULY 11, 1894.

My Dear General :—I have just finished your life of Queen Isabella, and in common with many of your friends thank you for this vivid picture of this great queen. It is not only a true picture of the times, and a just portraiture of her character, the book breathes such a spirit of charity it cannot fail to reach many hearts.

With loving regard, yours faithfully,

H. B. WHIPPLE,

Bishop of Minnesota.

GEN. O. O. HOWARD.

The omission of Washington Irving's name from the list of authors consulted was a "printer's error," as the following letter will show :

HEADQUARTERS DEPARTMENT OF THE EAST,

GOV. ISLAND, N. Y., SEPT. 10, 1894.

My Dear Mr. Neisel :—In my first MS. I put in the name of Washington Irving, No. 7, List of Authors. By some accident it fell out. Please make note so that a second edition, or an errata page may contain the name of an author I consulted so much in "Isabella of Castile." Yours truly,

O. O. HOWARD,

Major General, U. S. Army.

For MR. NEISEL,

Care of Funk & Wagnalls.

Great Commanders—General Thomas.*

To condense the history of a distinguished soldier within the narrow limits of a volume like this, is an undertaking that calls for an artist of superior ability. Something more than a sketch is certainly demanded. There should be at least shading enough in it to bring out the characteristic features of the subject, even if it cannot be made a complete picture. Of course the diminished scale compels the omission of many important details. The artist must select his materials, and his success or failure depends, as much on the judgment with which he makes the selections, as on the skill with which he arranges and presents them. The author, as he indicates in his preface, felt this responsibility heavily. The life of his subject was so interwoven with the lives of certain contemporary commanders, that a picture of it could not be painted without including much of the biography of other men. This he determined to avoid, wherever possible, but the temptation to wander into parallel paths was frequently too strong for this determination. There is a good deal in the book which might have been omitted without prejudice to the picture, and many interesting incidents have, no doubt, been reluctantly excluded for want of room. Whether the printed page will produce in the mind of the reader, without any effort on his part, a picture of the personality described, is a question which the reader only can answer. The subject is worthy of study ; but readers have become so fastidious now-a-days, that their mental pabulum must be carefully prepared or they will none of it.

In accordance with his determination then, the author has sketched the boyhood, cadet-life and early military career of George H. Thomas with a very light hand. He found little in them to indicate unusual ability or incipient heroism. His subject came of good fighting stock to be sure ; but he gave no early indications of genius. The sobriquet "Old Tom," conferred on him by his admiring classmates at West Point, indicates, however, that they had, instinctively perhaps, discovered one of his most striking characteristic—reliability—just as the soldiers that served under him, in recog-

* *Great Commanders—General Thomas*. By Henry Copée, LL. D. D. Appleton and Company. New York.

nition of the same characteristics, dubbed him "Pap." Modest but dignified, he was not without ambition, nor unconscious of his own powers. His letter to Kingsbury {7} shows that he had the natural appetite of a soldier, and longed for an opportunity to satisfy it. And this he found in the unpromising field of the Florida War. There, in his first battle he secured his first brevet—that of first lieutenant. The Mexican War enabled him to add captain and major to his honorary rank; but it took him thirteen years to reach the grade of captain in his regiment—the Third Artillery. He reached that grade in 1853; so George H. Thomas was an artillery officer for fifteen years, as he was appointed major of one of the new cavalry regiments in 1855. As major of cavalry he saw considerable active service on the plains, and strange to say received his only wound in a skirmish with Indians on the Brazos River on the 26th of August, 1860. This wound, and the necessity for a period of rest after his arduous Indian service, procured him leave of absence for one year, during which the great secession of Southern States took place.

These were the days that tried the souls of southern men who happened to be army officers. Many of them, to be sure, resigned joyfully and joined their seceded states; not a few did so with apparently heavy hearts and gloomy forebodings, and some stood by the government they had sworn to defend. In the last class appears the name of George H. Thomas, now promoted to colonel of the 5th Cavalry. Much has been said on the subject of his loyalty in 1861, and foul suspicions overshadowed him for a time. But there never was one scintilla of evidence to show that he wavered in his allegiance. On the contrary his conduct was inconsistent with anything but a loyal heart. His leave of absence had six months to run; he was suffering from an injured spine, the result of an accident in stepping from a railway car at Lynchburg, and which threatened permanent disability; he was wholly unfit for active duty in the saddle and might have taken his six months' leave for observation and recuperation. But he surrendered his leave at once and reported for duty with his regiment. That was the act of a loyal man and a patriot.

Colonel Thomas commanded a cavalry brigade in Patterson's column, during the Shenandoah campaign, a barren bit of service where no laurels were won by anybody. Why it was given a place in the author's sketch is difficult to determine, unless it was, perhaps, that he might quote the views of Thomas, given in 1864, in exoneration of General Patterson. This ought to be unnecessary. The duties of a retaining force are too well known to need explanation. But duties are sometimes difficult to do. When General Patterson, hampered by orders real or imaginary, was sent to play the rôle of commander of a retaining force against an expert like Joseph E. Johnston the game was lost *ab initio*. Patterson never had a chance.

In August, 1861, Thomas was appointed brigadier general, Sherman becoming sponsor for his loyalty. Nothing seemingly could dispel the cloud of suspicion which clung to every officer of southern birth. Honest Abraham Lincoln was suspicious, and Sherman had his doubts, even after he had given his bond. He could find no sleep until he had seen "Old Tom" and gotten his word for his loyalty. It is pleasant to think that "Old Tom's" word was still good with those that knew him. But men's minds must have been in a terrible state. In Washington almost every body was suspected, and with reason. Only a few months before there had been traitors in Congress and in the Cabinet; in the army and in the navy, and what they called society was still full of them. Thomas's loyalty made him many enemies, who were still in position to do him injury. And they did it no doubt. There is no other way of accounting for the suspicions that were continually cropping up against him.

Fortunately for Thomas he was assigned to duty in Kentucky, with Sherman as his immediate superior. An army had to be organized there, and he went to work

methodically and earnestly organizing troops. But he blew no belligerent horns, and had nothing to say to the newspaper men. These peculiarities were deemed suspicious, and noisy patriots carried the news to Washington. This aroused the old idea, and nothing would satisfy the patriots but the removal of Thomas. Fortunately General Sherman was in a position to protest, and the removal was averted. But what a narrow escape the army had! And who can tell how many modest heroes were blown into obscurity by those mephitic blasts of lip-loyalty and universal suspicion. There had been nothing like it since the French Revolution. The devil was at the helm, and gospel methods were reversed. Men were measured by their words, not by their works. Hence the tooting of so many warlike horns by men who did not think it their duty to enlist.

We have now reached an event which should have cleared away suspicion from "Old Tom." The battle of Mill Spring was pregnant with information which the Government needed very much to know. The importance of that victory is not to be measured by its magnitude. The author says in effect; It was the first Union victory; it opened the road into Tennessee; it established the reputation of General Thomas as a strategist and tactician; and it gave great encouragement to the loyal men of Kentucky and Tennessee. We admit all that, and insist that it established something more. It established the fact that General Thomas possessed that mysterious power which enables a man to control the hearts and minds of other men. This is of much more importance than strategy and tactics. Strategy and tactics are well enough in their way. They may enhance the value of a victory or diminish the disaster of a defeat; but they cannot achieve the one or avert the other. Valor, or as the ancients called it Virtue, is the only achieving power, and the man who can inspire it is a hero. The battle of Mill Spring showed that General Thomas was that kind of a man.

We are unable to see why the battle of Shiloh should appear in a life of General Thomas. He was not there and had nothing whatever to do with it. We are equally unable to see how the author comes to assert that General Beauregard had "to assume command in the very heat of an action planned by another." (76) The fact is notorious that General Beauregard planned and practically commanded in that battle from first to last. Indeed he states over his own signature ("Battles and Leaders" I., 580) that he "made notes regulating the order of the march from Corinth to Pittsburg, and the manner of bringing on the battle"; and that "those notes served as the basis of Special Order No. 8, of that date, issued in the name of General Johnston." And he goes on to say in effect that he explained and discussed all the details with General Johnston and instructed Generals Polk, Bragg and Hardee. As a matter of fact the Confederate battle of Shiloh was entirely the creature of General Beauregard. General Johnston issued no order but Special Order No. 8, and it was prepared exclusively from the notes of General Beauregard.

Since we have fallen into a fault-finding vein, we may as well notice here the strangely inaccurate and misleading language which the author uses in relation to Corinth. He says, (77) "Halleck, who was an engineer officer, was thus prompted to invest a weakly entrenched place," etc., and he frequently describes or refers to the operations in front of Corinth as an "investment." Now as a matter of fact Corinth was not invested, and could not be. Beauregard's communications were never interrupted nor even seriously threatened. He removed everything from his camps, lines and depots in a thorough and leisurely way, and then marched his army off without loss or opposition. There certainly was no investment, actual or attempted.

General Thomas had the misfortune to be "second in command" at the battle of Perryville—we say *misfortune* because a man in that position commands nothing, and should be held responsible for nothing. Indeed, there can be no such position by spe-

cial assignment. The officer next in rank to the commander is second in command, and his legitimate successor in case of accident, without special assignment. Why a valuable officer should be laid on the shelf to await such accident is not easy to understand. However, Thomas was so shelved at Perryville. He had been offered the command of that army in place of Buell, but had declined the assignment apparently from friendship to Buell, who had not been giving satisfaction to the War Department for some time. Perryville having failed to improve his standing he was relieved forthwith, and Rosecrans, the junior of Thomas, was assigned to command. The Government affected to believe that his previous declination was final, and included any and all appointments to chief command. It is more likely, that influenced by the old suspicions carefully kept alive by windy warriors who did their fighting with the tongue, the Government was afraid to give him the command. (89. Note.) Thomas was much misunderstood. He was a modest man, and modest men are always at a disadvantage where preferment is procured by solicitation. It is so easy and safe to slander a silent man. Indeed his very silence can be made to mean anything.

Under Rosecrans, Thomas commanded a corps, and at Stone River gave the world another exhibition of his power. "He was compelled to fight on front and flanks." (101) Strategy and tactics were decidedly against him that day, although he was no way to blame for it. It would be difficult to imagine a more dangerous situation. Of course Thomas was undaunted. That was to be expected, for Thomas was a brave man. But there was no wavering in the ranks. Under the circumstances that was wonderful, unparalleled in the war save at Chickamauga where the same influences prevailed. To one who recognizes that there was a power present on these occasions similar to that which held Wellington's squares intact at Waterloo, the explanation is easy. Men who deny the existence of such powers, must even be permitted to continue wondering at the wonderful. They are blind and cannot be converted.

General Thomas was always a loyal subordinate. Rosecrans' long delay at Murfreesboro is understood to have been heartily supported by him (123), and when that officer advanced at last, rather recklessly, perhaps, under the belief that Bragg was in retreat or just ready to go, Thomas supported the movement heartily, notwithstanding the fact that it stood condemned in his own judgment. And that was characteristic of the man.

Who can imagine a more heroic picture than Thomas and his corps at Chickamauga? There they stood in the midst of panic and confusion, two-thirds of the army being routed and ruined; hemmed in on three sides by three times their number, and hopeless of relief or reinforcement. They knew that the rest of the army was gone; that they were hopelessly outnumbered; that there was temporary safety within the intrenchments of Chattanooga and certain destruction where they stood. Yet they stood. Thomas had control.

Again in Chattanooga, in a situation more depressing, if less dangerous, when the army was slowly starving on "half rations of hard tack and beef dried on the hoof," Thomas could answer cheerfully that they "would hold it (the city) till they starved." He had no doubt about the men; and the men knew that "Pap" would take care of them. If he said starve, why starve it was.

General Thomas needs no other credentials. He was born to command. He may have been a strategist and tactician. We have not inquired very strictly into these points; but we believe he was. At any rate his greater gift throws all accomplishments into the shade, and he stands forth a commander of men by God's own appointment.

As a subordinate he was so prompt and energetic in his obedience, that anything in the nature of delay on his part was naturally considered extraordinary, and by those

who neither knew the man nor the circumstances in which he was placed, suspicious. Nothing else can explain the unreasonable impatience and ungenerous actions of the authorities at Washington and even General Grant, at the methodical preparations of General Thomas for that great battle which neither he nor his country could afford to lose. It was a sore trial of the faith that was in him; but he came out of it victorious, and his heroic figure stands out on the pages of history, if not greater, certainly grander than before.

JAMES CHESTER,
Captain 3d Artillery.

Manual of Military Field Engineering.*

This may truly be considered a handy hand-book; it is 5" x 7", and though containing 284 pages, is but half an inch thick. It is bound in flexible leather with rounded corners. The typographical work is excellent; and most of the plates are clear. The index is comprehensive.

By the preface and the opening definition, the scope of the work is limited to subjects considered indispensable as a part of a line officer's education, which subjects relate to the art of utilizing the materials at hand for the attainment of the security, effectiveness, health and comfort of an army in the field.

The table of contents includes hasty intrenchments, field-works, obstacles, siege-works, defense of localities and buildings, cordage and spars, spar and floating bridges, roads, railroads, telegraph and telephone lines, demolitions and camping expedients.

The manual has been prepared at the U. S. Infantry and Cavalry School by the Department of Engineering, that is, by Capt. W. D. Beach, 3d Cavalry, Instructor, and 1st Lieuts. E. A. Root, 19th Infantry, W. C. Wren, 17th Infantry, and T. H. Slavens, 6th Cavalry, Assistant Instructors.

As such works must necessarily be, it is mainly a compilation from numerous standard works—American, Austrian, English, French and German. Credit is given to forty-one books consulted in the preparation of the manual, and the list giving the titles of these books and their authors shows that the latest and best authorities have been consulted.

It is now in use at the U. S. Infantry and Cavalry School, where it has replaced an English manual with the unsuitableness of which the compilers of the work under review have become acquainted both as student officers and instructors.

In a few details the manual is open to criticism. While almost all the plates are excellent, a few figures are too small and furnish insufficient details, while others furnish too many. The plate (4) relating to gun epaulements is an example of the first class; the plates (47 and 48) of canvas and wooden pontoons are examples of the second. The working tools, including the pick and shovel, shown on plate 5, might well be replaced by examples of portable tools, illustrations of which are to be found in Publication No. 4, Military Information Division of the Office of the Adjutant General, U. S. A. Plate 34, taken from Haupt's Military Bridges, shows a bridge erected across Potomac Creek, Va., during the War of the Rebellion, which, while of interest, is beyond the scope of the manual.

Under Obstacles, it is unnecessary to describe those no longer in use. Query: Should not a fougasse be consigned to this class, as a sort of large-bore shot gun capable of being discharged but once and very likely to be rendered harmless by artillery fire before its single discharge? A wire entanglement more expeditious of construction than those described, is to be found in Brialmont's works.

* *Manual of Military Field Engineering*, for the use of Officers and Troops of the Line. Prepared at the U. S. Infantry and Cavalry School, by the Department of Engineering, Captain Wm. D. Beach, 3d Cavalry, Instructor, Fort Leavenworth, Kansas. 1894.

Under Hasty Intrenchments, no reference is made to the use of two lines of trenches suggested by Plessix and Legrand, which may be readily converted into the trench and ditch of an intermediate parapet.

More attention might be directed to profiling on sloping ground, with reference to the modification of sections of trenches due to the angle of fall of projectiles.

The use of corrugated iron in field casemates is not noted.

A hint in paragraph 33 as to where to place the eye in locating trenches, should be italicized to prevent overlooking the valuable caution given.

The chapter on Spar Bridges describes forms of some such bridges and of suspension bridges, the construction of which would be most likely to be undertaken by special construction corps. The double-lock, and single, and treble-sling bridges require an amount of cordage not to be found in the trains of troops of the line in the field. For proof of this, one needs but consult tables on pages 174 and 175.

From the chapter on Floating Bridges should be eliminated tables of weights of advance guard and of reserve trains; and referring to bridges, the slip-knot shown on the rack-lashing in plate 31, is superfluous if the rack-stick is correctly used. The passage of fords might be amplified by information based on frontier experience, as to carrying wagons across fords and up their scarped banks.

The description of American methods of loading and unloading cars used for transportation of guns, horses and wagons, should be supplemented with hints for entraining and detraining foot troops. The definitions of railroad material and notes as to curves are unnecessary, unless in future editions fuller instructions are given as to making temporary repairs, including leveling up of tracks and raising of outer rails of curves. Instruction as to work by construction corps might be omitted.

The paragraph as to when railroads are to be destroyed is fit matter for italics; and a like paragraph might in substance open the chapter on Demolitions. The Franco-German War afforded at least one incident of an ill-timed destruction of a tunnel.

Among camping expedients, hints as to erecting the different service types of tents would be of much assistance.

So much in criticism. If one hopes to find much information as to siege-works, ponton bridges, repairs and constructions of railroads, and the working of telegraph and telephone lines, the fault is his. He has misjudged the scope of the manual.

The manual as a whole is admirably adapted to its purpose and is recommended not only to those for whose use it is declared to have been prepared, but to all who should be informed, or desire information on the subjects considered.

J. G. D. K.

General Washington.*

That most of the important events attendant upon the stupendous struggle which gave birth to the United States, from the inception of the War of the Revolution until his death, were largely influenced by Washington is a fact long recognized by historians, and that this fact is emphasized in the latest biography of our greatest commander must be conceded by all who are fortunate enough to read it.

Some one has said that time only renders the character of Washington more clear, while the circumstances which developed it become more and more indistinct. Certain it is that we must reckon with the heroic element in this particular man if we wish rightly to understand the revolutionary period in our country's history. With the passage of time Washington's military genius more and more impresses the military student, he seems to have possessed all the qualities which form the great general. Courage of the highest order—"not the dogged resolution of the brute, nor the daring inspired

* *Great Commander Series—General Washington.* By General Bradley T. Johnson. D. Appleton & Co. New York.

by sudden excitement, but the calm and lofty feeling which no surprise can disturb and no catastrophe unsettle"; personal magnetism, deliberation, alertness, an eye that sees, a mind that combines, a memory that forgets not, and a physique that never tires, in a word, *mens sana in corpore sano*.

The admirable descriptions of the campaigns of the Revolution given by our author well repay study and cannot fail to impress the reader with wonder, not that so much was accomplished, but that under the conditions anything could have been done. The fate of the nation could not be permitted to rest upon the result of a single battle, and the commander was forced to play a waiting game—his "business was to fight enough but not too much; to retreat when he could not help it, but not too far or too often; to keep his troops encouraged by enough taste of blood to brace them up."

Washington's retreat after the disastrous battle of Long Island would alone entitle him to high rank as a commander. In New Jersey, hard pressed and almost surrounded by Cornwallis's veteran army, he, with a handful of men, fought and won the battles of Trenton and Princeton. Frederick the Great said that the dash on Trenton was worthy of the greatest general. He planned the campaigns which ended at Saratoga in the surrender of Burgoyne, and at Yorktown in the overthrow of Cornwallis. Measured by the strict rules of the art of war, much, doubtless, in these operations might be found to criticise, but judged by the results the means minus the general appear utterly inadequate.

It is not, however, the remarkable military gifts alone of Washington that so much impress us as the conditions under which they were exercised. The whole burden of affairs was placed upon his shoulders. Congress "paralyzed by inherent imbecility and secret treason," acknowledges its inability to meet the tremendous pressure of the situation and simply transferred it to Washington in December, 1776, by practically appointing him dictator. Our author says: "Whether this resolution was passed in the enthusiasm of the receipt of the news of the victory at Trenton on the preceding morning, or whether it was passed in despair at the desperate condition of the Revolution it was clearly an abandonment by Congress of the struggle, and a confession of its own incapacity to do anything." Washington really became the Revolution—his task, our author continues, was not only to keep an army together as a nucleus of armed resistance, but to hold the Congress and prevent its disappearance from off the earth; "to sustain the spirit of resistance in the states so that * * * the seeds of rebellion should be preserved and cherished, and the struggle against irresponsible and unlimited power should never be abandoned." Had ever man before such a mighty task?

In this tribute to a soldier and a Virginian to the first Virginian and our greatest soldier is made clearer the fact, so well expressed in the words of Chief Justice Marshall that Washington "more than any other individual, and as much as to one individual was possible, has contributed to found this our wide-spreading empire, and to give to the western world independence and freedom."

* J. V. R. H.

The Association of Military Surgeons.*

The medical profession is accustomed to accord to Surgeon General Nicholas Senn of Illinois the first rank among surgeons for his monumental contributions to surgical pathology and practice. But in the conception, organization and promotion

* *The Proceedings of the Third Annual Meeting of the Association of Military Surgeons of the United States.* Held at Chicago, Ill., August 8th, 9th and 10th, 1893. Edited by the Secretary, Lieut.-Col. E. Chancellor. St. Louis, 1894.

of the Association of Military Surgeons of the United States, he has earned a new title to the position already won by his professional labors. Originally organized as the "Association of Military Surgeons of the National Guard of the United States" under a misconception that medical officers of the public services could not properly become members of such a body, the Association was promptly opened to the regular service as soon as authoritative information was received that regular medical officers could join it, and the words "of the National Guard" were dropped from the title. This action is fully detailed in the volume under consideration. It is greatly to the credit of the medical officers of the army that a cordial and prompt response was given to the invitation thus courteously extended by the surgeons of the National Guard. The membership from the medical department of the army was at once greatly increased and probably so many medical officers of the regular army have not been seen together since the War of the Rebellion, as were in attendance at the next meeting. A large delegation was officially detailed by the War Department and many medical officers took leaves of absence in order to attend at their own expense, while some in addition even hired substitutes during their absence from their stations. The hearty coöperation of the regular surgeons was acknowledged by the Association in a most graceful way by the unanimous election of the Surgeon General of the Army to the presidency.

There are many ways in which the regular medical officers and the national guard surgeons may be reciprocally serviceable one to the other. The regular army surgeon readily takes the lead in technical military medicine because in his daily life he is constantly surrounded by medico-military environments. His practical experience in the military technique, his opportunity for familiarity with the camp and field, and the more complete control over his men accorded by exclusive military methods, give him advantages in the development of administrative and executive functions rarely possessed by civilian surgeons. The greater amount of time for laboratory and literary work rendered available to him by the systematization of his duties is a decided advantage, but the paucity of clinical material in his practice, his isolation from the great centres of medical activity and the inaccessibility of the great libraries of medical learning greatly hamper him in the prosecution of the practical phase of his work.

The national guard surgeon, although weak in the points where the regular medical officer excels, readily surpasses in the respects wherein the latter is defective. Lacking in quiet leisure, in military technique, and in disciplinary facilities, he possesses the possibility of gaining in professional enthusiasm born of constant contact and rivalry with his professional confrères and excels in the clinical experience upon which the most successful treatment of disease must be founded. Many surgeons of the national guard are preëminent in the medical profession. Senn of Chicago, Bryant of New York, Park of Buffalo, Fowler of Brooklyn, Burrell of Boston, White of Philadelphia, and many others, are surgeons of international reputation. In practical medicine and surgery then they may contribute largely to our stock of information.

The Association of Military Surgeons affords a most happy combination of these two elements of strength. The Proceedings of the Association, the third annual volume of which is before us, is one of the results of this union. It is a compact, well-printed volume of 264 pages, presenting in detail the transactions of the third annual meeting which was held in Chicago during the World's Fair.

The principal features of the book are the President's Address of Surgeon General Senn on "Enterorrhaphy, its History, Technique and Present Status," and a symposium on "Gunshot Wounds," by General Griffith, Colonel Burrell, Majors Girard and Fowler, and Captains LaGarde and Adams.

General Senn never appears in print except in an original, instructive and exhaustive manner. The present address is entirely worthy of his reputation. He believes that longitudinal and incomplete transverse wounds of the intestines are best treated by the Czerny-Lembert method of suture or by a single row of Lembert stitches when time is an important factor. Complete division of the bowel is best treated by invagination and suture. He condemns the use of buttons or other metallic supports, but believes that such aids made of absorbable material may be developed to a useful degree.

The papers on gunshot wounds treat of Wounds of the Abdomen, Wounds of the Joints, Wounds made by Large and Small Bullets, Wounds of the Long Bones, the Injuries inflicted by the Mantle Projectiles, and Wounds of the Chest, respectively. The authors were necessarily limited in the practical application of their papers by the fact that the new 30 calibre Springfield rifle has as yet seen no extensive trial. The available facts, as quoted, are derived more particularly from the valuable experiments of Capt. LaGarde with reduced charges at proportional ranges. It is claimed, however, that these conditions do not produce the same effect as the full charges at the actual ranges, a fact that can easily be determined by practical experiments upon animals and upon the cadaver.

The regular service is also represented in the book—in addition to the papers of Major Girard and Capt. LaGarde already mentioned—by six contributions. Major Smart presented the valuable paper on the Medical Department of the Army, which was also published in the *JOURNAL* for July, 1894. Major Havard wrote of a Diagnosis Tag in the Field, and Capt. Woodruff commented on a number of Military Medical Problems. Capt. Ewing and Lieut. Keefer discussed the Physical Examination of the Recruit and Lieut. DeShon considered the Military Rifle.

The remaining papers were written by medical officers of the National Guard. Major Carr of Ohio wrote on the Qualifications for and the Status of a Medical Officer in the National Guard. Major Gottlieb of New York considered the Medico-Legal Status of the Military Surgeon, Lieut. Halberstadt of Pennsylvania, in connection with Camp Cooking Stoves, described a new camp cook-stove of his own invention, which has been used with advantage by the troops of his state, and Lieut. Ohmann-Dumesnil, a well known dermatologist of Missouri, treated of the Prevention of the Cutaneous Parasitic Diseases in Soldiers.

Not the least advantage to be anticipated from the growth of the association is the establishment of a mass of military medical literature for the future student to draw upon, as well as the stimulation of thought and discussion to be derived from the publication of the views of those interested in this study. No specialty is more clearly defined nor better developed than military medicine, and none more distinctly demands a literature of its own. As a contribution to this literature, these Proceedings are of especial value. The manner of publication however, is susceptible of criticism. Publication at more frequent intervals is far more serviceable in arousing and maintaining active interest. The *JOURNAL OF THE MILITARY SERVICE INSTITUTION* is a model which the Association of Military Surgeons may well follow in their future publications. That there is a prospect of this result being attained is shown by the adoption at this meeting of a resolution to issue a monthly military medical journal. When the first number appears it will be hailed as a factor of the greatest importance in the promotion of military medicine.

But, as an annual volume, the book is a worthy representative of the best that might be desired in the Association. The absence of an index is the only point demanding adverse criticism and this is a small fault in so excellent a work. By the judicious and masterly preparation of the transactions, the accomplished secretary has

certainly accentuated the high esteem already won by the urbanity, tact and ability with which his office has been conducted.

JAMES E. PILCHER,
Captain, Medical Dept.

Electricity One Hundred Years Ago and To-day.*

In tracing the history of electrical science from practically its birth to the present day, the author of this work has, wherever possible, consulted original sources of information, and he was fortunate to have at his disposal for this purpose the excellent library of the Franklin Institute, which contains perhaps the most complete collection of scientific publications of the last century to be found in this country.

As a result of these researches, several revisions as to the date of discovery of some important principles in electrical science are made necessary. For example, it is found that Sir Humphry Davy was anticipated in the discovery of the electric arc by many others, and in fact did not claim to have been the first to discover the brilliant effects of the arc. Proper credit is given to Gilbert for his inductive methods, and in an appendix several writers are quoted to show that Bacon has been honored above his merit in this respect.

While, as the author states, the compass of the book does not permit of any other than a general treatment of the subject, yet numerous references are given in foot-notes, which also in many cases quote the words in which a discovery was first announced to the world, or give more specific information in regard to the subjects mentioned in the main portion of the book. This feature will be found of interest and value, for often a clearer idea may be obtained from the words of a discoverer of a phenomenon or principle than is possible through other sources.

The work is not a mere catalogue of subjects and dates, nor is it couched in technical language that only appeals to a few. On the contrary, one of its most admirable features is the agreeable style in which the work is written, its philosophical discussion as to the cause and effect of various discoveries and its personal references to great names in electrical science. Much information as to electrical phenomena may also be obtained from the book, as the author is not satisfied merely to give the history of a discovery but also adds a concise and clear explanation of it.

* *Electricity One Hundred Years Ago and To-day.* With copious Notes and Extracts. By Edwin J. Houston, Ph.D. (Princeton). New York: The W. J. Johnston Company, Ltd., 253 Broadway. 299 pages, illustrated. Price \$1.00.

ESSAYS FOR PRIZE OF 1894.

WE have received thirteen competing essays for the prize of 1894.

The following are the *noms de plume* of the authors: Carl; Discipline; Discipulus; E. G. J. N.; Foenum in cornu habet; Fluellen; Homo; Military; North American; Steuben; Subordinate; Toujours en Avant; Vale.

Notice.

MAJOR WILLIAM L. HASKIN, 1st U. S. Artillery, retained the editorship of the departments of "Essays" and "Comment and Criticism" until August fourth of the present year, when, on account of the pressure of other duties, and greatly to the regret of those associated with him, he felt compelled to relinquish a position which he had filled with so much success since the January number of 1891.

The present incumbent realizing how difficult it will be to maintain the JOURNAL at the standard set by Major HASKIN respectfully asks the best support of our members in his efforts to that end.

The purpose of the JOURNAL is to furnish information as to recent progress in military matters, and to afford a medium of communication for all Arms of the Service and the National Guard. The hearty coöperation of these branches is earnestly desired in order to maintain the JOURNAL as a thoroughly representative periodical.—ED.

The Military Service Institution.

President.

Major-General JOHN M. SCHOFIELD, U. S. Army.

Resident Vice-Presidents.

Major-General O. O. HOWARD, U. S. A.

Bvt. Brig.-Gen. T. F. RODENBROUGH, U. S. A.

Asst. Secretary.

Lieut. C. G. TREAT, 5th U. S. Artillery, A. D. C.

Treasurer.

Lieut. J. C. BUSH, 5th U. S. Artillery.

Executive Council.

Term ending 1899.

HOPP, J. VAN R., Major Med. Dept.
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(Vacancy.)
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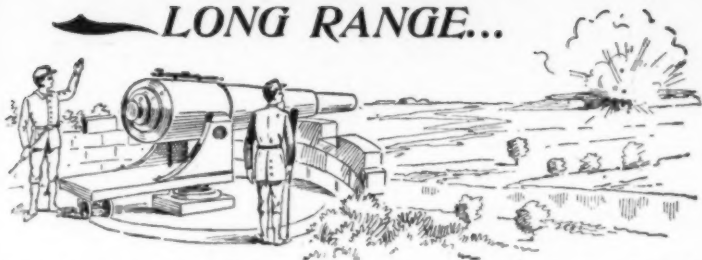
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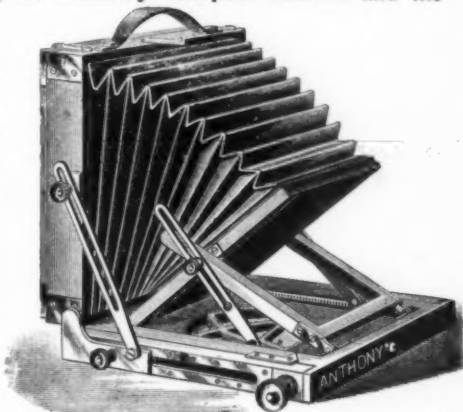
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THE THIRD REGIMENT OF CAVALRY.*

BY CAPTAIN CHARLES MORTON, THIRD U. S. CAVALRY.

THE Third Regiment of Cavalry was organized by an act of Congress approved May 19, 1846, as the Regiment of Mounted Riflemen; and its present designation is in consequence of the act approved August 3, 1861, classifying all the mounted regiments as cavalry, and the subsequent numbering of them in the chronological order of their original organization.

The act provided for one colonel, one lieutenant colonel, one major, and one lieutenant for adjutant; a sergeant-major, quartermaster-sergeant, chief musician, two chief buglers; ten companies, each to consist of one captain, one first and one second lieutenant, four sergeants, four corporals, two buglers, one blacksmith, one farrier, and 64 privates.

The pay was that for dragoons, but, through error or design, was the same mounted or dismounted,—by interpretation. The bill appropriated \$75,000 for mounting and equipping, and \$3000 for each station established along the Oregon route. But, best of all for the regiment's future *esprit* and the good of the service, it was accorded lineal promotion from bottom to top, and distinctive uniform, arms, equipments and ornaments; and the officers recruited the material they were to fashion and command, and could enlist only "young men of the country" especially fitted for the service anticipated.

The senior officers were political appointments, made with some attention to equitable geographical distribution over the south and west. They were announced at once, to rank from May 27, 1846.

Persifor F. Smith of Louisiana, a lawyer by profession, a gentleman of culture and ability, and destined to prove a skillful and successful general, was appointed colonel.

John C. Fremont, lieutenant of topographical engineers, essaying the conquest of California, was appointed lieutenant colonel, resigning March 15, 1848, before he joined. The story of his life is current history.

George S. Burbridge of Kentucky, a country merchant and politician without martial taste or ambition, and in poor health, was made major. He saw no active service, resigning January 8, 1848, while on prolonged sick leave.

The captains were Wm. W. Loring, Winslow F. Sanderson, Samuel H. Walker, Henry C. Pope, George B. Crittenden, Stevens T. Mason, John S. Simonson, Jacob B. Backenstos, Bela M. Hughes and Stephen S. Tucker. Hughes declined and the appointment was tendered Charles F. Ruff of Missouri, a late lieutenant of the First Dragoons, then serving in New Mexico as a lieutenant colonel of Doniphan's regiment, who accepted,

* An Abridgment of Captain Morton's "Historical Sketch of the Third Cavalry."

taking rank from July 7th. Walker was a Virginian and Texas ranger who had distinguished himself by carrying the message to the beleaguered troops in Fort Brown to hold out, passing through the Mexican lines and returning.

The first lieutenants were Benjamin S. Roberts, Thomas Ewell, Andrew Porter, Michael E. Van Buren, Llewellyn Jones, Noah Newton, Thomas Duncan, Wm. W. Taylor, Andrew J. Lindsay, John G. Walker and Spear S. Tipton. Jones was the first adjutant. Tipton was captain of an Indiana volunteer company and son of Senator Tipton, who was an ensign and commanded a company at Tippecanoe after all the other officers had fallen, and later married the daughter of the dead captain, Spear Spencer.

The second lieutenants were Thomas Claiborne, Thomas G. Rhett, Charles L. Denman, Washington L. Elliott, Thomas Davis, George McLane, Robert M. Morris, Llewellyn Raguet, Francis S. K. Russell, and Julian May.

The following brevet second lieutenants were assigned on the 17th of July; Daniel M. Frost, George W. Hawkins, John P. Hatch, Gordon Granger, Dabney H. Maury, Innis N. Palmer, James Stuart, Alfred Gibbs, and George H. Gordon.

Consistent with army administration by politicians, men of experience or educated for the profession were placed in the lower grades. An old army surgeon said that under the Sumner régime companies would go to drill with full complements of officers, and return under command of brevet second lieutenants, all the seniors having been relieved in the order of rank by the stern old major for inefficiency, and for this reason it was chafed for a time as the "Kangaroo Regiment." Another who served with it later said, "The officers were all gentlemen, brave and generous to a fault, strict disciplinarians, and looked well after the wants of their men, but the most cantankerous lot I ever met."

Companies C and F were recruited in the mountain regions of Pennsylvania, Maryland, Virginia, and North Carolina, with depot at Fort McHenry; the others in Ohio, Indiana, Illinois, Kentucky, Tennessee, and Missouri, with the depot at Jefferson Barracks commanded by Colonel Bonneville, where the regiment was organized in October, excepting Company I, which, owing to the absence of Captain Ruff, was not formed until the first of the following April, at New Orleans.

There is much evidence extant as to the superior material of which the regiment was made. It was armed with the hunting rifle, persistently called the "yawger." The barrel was too large for the shank of the bayonet furnished, and the latter was used for a time with a wooden plug that fitted into the bore,—another source of chaff for army wags. Company blacksmiths eventually overcame this difficulty by swelling the shanks.

Notwithstanding that the law had presumably fixed the nature of the service of the regiment, and recruiting officers had been sincere in their representations, the administration found no impediment in the way of ordering it to Mexico early in November, a mandate greeted with cheers immediately after the dress-parade at which it was read. Indeed, Companies C and F reached Point Isabel, Texas, October 5, thence went to Monterey and later to Tampico, joining at Lobos Island. Soon after horses and equipments

were received, the regiment left, November and December, in detachments of one or two companies on steamers for New Orleans, all experiencing delay there in getting transportation for Point Isabel. The horses were placed on schooners with lumber sheds erected for shelter. It was a particularly stormy season and most of them were lost in the gales encountered in crossing the Gulf, while the remainder were transferred to the Second Dragoons, sadly in need of them,—another source of chaff, “dismounted riflemen.” Disappointing as was this loss of horses, it proved a blessing by saving the regiment from being left behind to escort trains for Taylor’s army and chase guerrillas in the chaparral, and permitting it instead to participate in the campaign where it won such renown.

Major Burbridge left the regiment at New Orleans, and Major Sumner was assigned December 12th, to command. Some companies arrived at Point Isabel and went to Camp Page the last of December, the others in January. In the meantime General Scott, arriving, took D and probably another company to Camargo as escort. The regiment embarked, February 20, 1846, for Lobos Island, arriving two days later. Here it met Companies C and F, and was first joined by Colonel Smith.

March 3d it sailed, and on the 9th landed at Sacrificios Island and led in the investment of Vera Cruz, Private Timothy Cunningham of Company A, who was killed on the 11th by a cannon ball, being the first of the regiment to lose his life in action; Waller and Niell of B being wounded the same day.

Company C only was mounted until I joined at Jalapa, though men from others were attached much of the time. Colonel Smith commanded the First Brigade, Twiggs’ Division, and Major Sumner the regiment. There was continuous annoyance from the rear during the siege and almost daily skirmishes; on the 23d a brilliant affair at Puente del Medio, C, D and E. Among the wounded of D was Sergeant Wm. B. Lane, who rose to be major of the regiment and brevet colonel, of whom much might be said, and of his good wife who has told so charmingly in her little book, “A Soldier’s Wife,” of female life in the regiment. Here too “Benny” Roberts, commanding C, attracted attention to the superior material in him that was to make an enviable record as a mounted officer.

The regiment started, April 8th, from its camp at Vegara on that memorable expedition of conquest of which history recounts none more daring in conception, nor brilliant and thorough in successful execution.

Detachments were with Captain Johnson in the affair of the 12th, and on the 15th Roberts commanded the squadron reconnoissance that found the possible route to turn the “Gibraltar” of Mexico—Cerro Gordo—which proved its downfall, but only after the fierce battles of the 17th and 18th, which cost the regiment in its terrific assaults the lives of Mason, Ewell, Davis and ten men; and the wounding of Sumner, McLane, Maury, Gibbs, Gordon and 66 men, many of whom died. Company A had an officer (Ewell) and two men killed, and 19 men wounded.

General Scott expressed his admiration of the “style of execution” of the assaults, and said Ewell fell sword in hand within the works. In fact the General knelt by his side, took his hand, and soothed his expiring moments

with kind words of praise. Mason's leg was swept away by a cannon ball. Maury won a brevet, as did several others, and a handsome sword.

After "embarrassing" their general with prisoners and trophies of victory, they pursued the enemy to Encerro, and on the 19th to the Mexican Saratoga,—Jalapa. The Castle of Perote, "second only to San Juan d'Ulloa," fell at noon, the 22d, and on sped Worth to Puebla. The supply departments, unequal to the valor of our troops, cause vexatious delays and failure to follow up further these splendid victories over a demoralized enemy, and give time for disease to make fearful inroads in the ranks, and the foe to reorganize and fortify a naturally strong defensive country, and to swarm the highways in desperate, barbarous, guerrilla warfare.

Ruff, with I, mounted, arrives May 20, and also Walker with hundreds of recruits. The latter is sent with C to Perote, and the former on the roads; and Roberts is placed in command of a battalion of "irregulars," all to wage war against the relentless, partisan "rancheros." It was hard riding nearly all the time, encounters almost daily. Space allows mention of but one or two.

Near La Hoya, June 20, thirty riflemen engage and defeat 500 Mexicans, eliciting high praise of Walker from Colonel Wyncoop, commanding, and in turn from Walker of Denman, Claiborne and men.

July 30, Ruff's squadron defeats a largely superior force at San Juan de los Llanos, killing 40 and wounding 50; winning praise from Smith and Scott, and brevets for Ruff and John G. Walker. The War Department has given this date wrongly.

The rifle being clumsy to handle mounted, necessitated firing one round and then riding the enemy down with the sabre,—a custom that soon infused the officers and men with the conviction that they were irresistible; an idea that is not yet quite extinct.

The regiment left Puebla with the advance, August 7th, and reached Ayotla the 11th, making a reconnoissance of the impregnable fortified stronghold, El Penon, on the 12th and 13th, eliciting again the praise of General Scott. The turning of Lake Chalco making the exposed rear "the post of honor," the riflemen were assigned to 'it, stood off the enemy in overwhelming numbers, and when San Antonio thwarted further progress were rushed to the front to open the way across the *pedregal* to Contreras, the 19th.

Here General Smith displayed generalship and won success worthy of the genius of Napoleon; and General Shields showed the good sense and moral courage of Logan at Nashville, that made him "the hero of three wars," and senator from as many states; winning a splendid victory over a ten times superior force partly fortified, when defeat would have been dire disaster to the whole army. Yea more, he made possible four sweeping victories in a single day,—August 20, 1847,—the greatest field day as yet for our army.

Roberts with A, and Porter with F, open the fray on the 19th, but all were soon engaged, and the horrible execution of their rifles appalls the newspaper men and demoralizes the enemy. Smith is everywhere and leads a part of the rifles to save Magruder's battery. D is thus split and Sergeant

Lane leads a segment, which is given to Van Buren at night, to head and fall wounded in the day-break assault. Alfred Gibbs gathers a few madcap volunteer riflemen, hastily mounts them on captured animals and sweeps with impetuosity upon the rear of the fleeing columns until paralyzed with captures; and the regiment rushes on to Churubusco.

Poor Ruff! Once placed in arrest for bringing on an engagement and summoned before his indignant commander-in-chief, could only explain " 'Twas fight or run, and I'd be 'blanked' if I'd run." He was, the 20th, at another "post of honor," San Augustine, with I and the no less gallant J. G. Walker, chafing over the din and roar of battles, and pining to be in the armed tornado of Harney's dragoons who were careering among the flying hordes, and under a terrific fire, rattling their sabres at the gates of the Mexican capital. But they too have their day. With Sumner at Molino del Rey, September 7th, they charge under a heavy fire, encounter an impassable ravine which they turn, and defeat a vastly superior force of "the finest cavalry in the world," we are told. I's ranks are sadly decimated, and Walker carried to his grave in 1893 the marks of the wound he caught.

Neither Walker's nor Van Buren's hurt could keep either from taking a gallant part in the fall of Chapultepec, the struggle along the aqueduct and assault of the garitas, the 13th; and triumphant entry into the city, the 14th. The newspapers tell us that when the marines faltered in the assault of Chapultepec through loss of officers, Morris of the *Rifles* reminded them that he was a son of his naval father, and led them on to victory.

Roberts was detailed to head and "Jimmy" Stuart to accompany the Chapultepec storming party from the First Brigade. General Twiggs gave the former a flag, now in the Department of State in Washington, saying he wanted it to be the first planted upon the rocky fortress. If not actually "planted," the request was doubly kept, for, turning from that bloody victory it was carried by Sergeant Manly of F through the stubborn fight along the aqueduct, and was one of the first, if not *the* first, on the ramparts of the city at the Belem garita, where Loring left an arm, and Backenstos, Tucker, Palmer, and even Walker again, of the officers were wounded.

And the next day comes the crowning glory of the war. Roberts is directed to, and Sergeant Manly actually does, raise the same flag over the National Palace, while Porter displays the Riflemen's flag from the balcony. General Scott riding by the regiment about this time, halts, takes off his hat and bowing low says: "*Brave Rifles! Veterans! You have been baptized in fire and blood and have come out steel.*" Words are cheap, but appreciation sinks deep in the hearts of soldiers.

Manly dies of his wounds in a few days, as indeed do many others. Street-fighting and assassinations occur for a time, and the regiment is put on provost duty in the city. Loring and Van Buren have to go to the States with their wounds, but the fame of the regiment precedes them and the ladies of New Orleans present a \$225 flag "To that gallant regiment which from its landing at Vera Cruz to its entry into the famed 'City of the Montezumas' has been foremost in every battle, sustaining by the valor and sacrifices of its officers and men the flag of our beloved country." The regiment still has the flag, and reveres its associations.

The Mexican army escaping from the city made stupendous efforts to destroy all communications, laid siege to Puebla, where several of the regiment fell, and Rhett won a brevet. Captain Walker at Perote had organized the convalescents into the "diarrhoea brigade," as it was called, and with "C" was kept on the jump. October 9th he had a fierce encounter at Huamantla with a much superior force, and fell gallantly with many of his men, eliciting loud praise from General Lane for his bravery and efficiency, and lamented by all who knew him. His death promoted Van Buren captain.

General Smith was governor of the city. Police duty, hard riding after guerrillas, and occasional encounters, characterized the rest of the service in Mexico. Notable among the latter were the fights at Metamoras, November 23d; Galaxara, the 24th, 1847; and Santa Fé, January 4, 1848. The regiment left Vera Cruz on the ship *Tyrone*, July 7, 1848, reaching New Orleans the 17th and leaving the same day on the *Aleck Scott*, arriving at Jefferson Barracks the 24th, having had some men die and others drowned on the trip.

Approximately the regiment lost in Mexico four officers and 40 men killed; 13 officers and 180 men wounded, many of the latter dying and could be properly rated as killed; one officer and 202 men died; 141 men were discharged for disability, largely from wounds; 17 desertions, many of which were undoubtedly assassinations; and three men dishonorably discharged, one of whom was drummed out. This showing should refute the averment that strict discipline causes desertions, and its study will show the superior loyalty of native material. From the men were promoted to be commissioned officers:—Addison, Bootes, Coleman, Davis, Demerest, Dryer, Hand, Irvine, Lane, Underwood, Wingate, and perhaps others. Colonel John Green was a rifleman in Mexico, but was promoted later. A. F. Suter was the surgeon until his death, December 17, 1847. It was not a chaplain regiment.

The appointment as lieutenant in the regiment of the celebrated "Kit" Carson, in 1847, was not confirmed by the Senate.

Loring was now the lieutenant-colonel, vice Fremont, and as General Smith was kept constantly away commanding divisions or departments until his promotion to brigadier general, December 30, 1856, he commanded the regiment till 1861, from which fact many think he was the first colonel.

The incidents of the long, weary march of 2500 miles to Oregon, beginning May 10, 1849, through a country without roads and often without wood, water or grass, and compared to which the loud boasted modern ones sink into insignificance, would more than fill the limits of this sketch. Cholera raged in the stream of emigrants allured by visions of gold to the new Eldorado in California, and fabulous stories were inflaming the minds and turning the heads of the soldiers. Unlimited wealth could be picked up for the trouble! The death rate was appalling. Excepting Fort Kearney and the fur trading station, Laramie, there was not a house between Leavenworth and the Columbia. On reaching the latter the horses were too much worn down to march, and the mules to haul loads over the Cascade Range. Men were

dismounted and the horses driven by details at easy stages. An enormous raft was constructed and the baggage put aboard to float down, while the command marched on foot. The detachment on the raft let it get into the terrific current of the rapids, it became unmanageable and was dashed to pieces against the boulders. All but one were drowned and the entire cargo was lost. It was a sad plight in this region, but not unmixed, for the officers' returns were nicely balanced to date, and calumny says that for years after things would turn up lost on that raft.

Quarters for the winter were found in Oregon City, about the only town in the region. Loring soon looks up a site and locates Columbia Barracks, now Fort Vancouver, leaves a natural tree for a fine flagstaff, and by actual experiment places the officers' quarters so far apart that a crying baby cannot be heard in the next.

There was hard work, much detached service, some hanging of Indians by Governor Lane, the comrade general in Mexico, and disagreeable service, but not much fighting.

In 1851 the regiment returned to the States, the horses and all the men but about seven non-commissioned officers to each company being transferred to the First Dragoons.

In April Lieutenants Walker and Stuart were sent overland to California with the horses and some of the men transferred. En route they had a fight on June 18 with Rogue River Indians, and in the charge "Little Jimmy" Stuart, the pride of the regiment and one who had won two brevets at Chapultepec, was killed. Traditions of his brave and noble character live in the regiment to this day.

The regiment left Vancouver May 8, and proceeding by water via Savannah, Havana and New Orleans reached Jefferson Barracks July 16, to recruit and organize for the third time at the same place within five years.

Recruits came streaming in and the companies were soon filled, and in December, 1851, and January, 1852, the regiment, except A and K, was transferred to Texas. Then commenced over four years of hard field service in this land of cactus, chaparral and magnificent distances. The Comanche and Lapin Indians that had kept this country terrorized for two centuries would not yield their sway. Approaching stealthily in great numbers, they would scatter in numerous small parties and simultaneously attack many widely separate unsuspecting localities, and from each leave a trail of blood. These outrages were generally committed as far as possible from the troops, but sometimes, with consummate daring, under their very noses. Captain Bourke tells of a later expedition, in which companies of the regiment took part, in over 20,000 words; Doctor McKee of another in a little less; how hopeless the task here. The companies simply made with their trails a spider-web of the map of that great empire state. The highways were so vexed with these savage pests that everything had to have an escort, and even companies had to march way down to Corpus Christi to meet their recruits and get their meagre supplies and clothing.

We left A and K at Leavenworth. They were kept constantly on the move in the country between Laramie and Leavenworth until January, 1854, when they also were transferred to Texas, reaching Fort Inge Feb-

ruary 27. Lieutenant (now General) Carr, one of this command, was wounded October 3, this same year, in an engagement with Mescalero Apaches, way out near Fort Davis. Captain Van Buren commanded and Levi H. Holden was medical officer on the last trip to Laramie. Some 40 men of A, with Lieutenants Morris and Baker, were not along, but were an escort to Captain Gunnison, Topographical Engineers, and went to southern Utah, where three men were killed, with the captain, October 26, near Lake Sevier.

These enormous marches in a season, on plains fare, though not so hard as scouting, are worthy of study by modern readers and writers of magazine articles on long marches; and by those who are ignorant of the work performed by our army, and think nothing that is not from a foreign service is of any value. No nation has enjoyed a better practical school for an army than our own.

Before the Carr affair, Van Buren went out with A from Inge, July 4, after a band that had run him in that day from fishing in the beautiful Leona. He followed them many days through the almost impenetrable jungle of chaparral along the Nueces, which he crossed and recrossed many times, when on the 11th he struck them, and in the charge had an arrow put through him from which he died on the 20th. Thus fell another hero of the Mexican War. Jerome N. Bonaparte and Crosby joined in 1852; Bowen, Chambliss, and Edson, 1853; Davant Wright and J. E. B. Stuart, 1854; McNally, Treacy, Dubois and Averell, 1855; William H. Jackson and Enos, 1856. All were from West Point except McNally and Treacy who came from the ranks.

In 1856 the Indian troubles in New Mexico, which then included Arizona, demanded more troops, and the regiment was ordered there, being relieved by the Second (now Fifth) Cavalry. At Camp Crawford, near Fort Fillmore, orders were received assigning the companies to Forts Craig, Stanton, Thorn, Fillmore, Bliss and Marcy, and Las Lunas, and Cantonment Burgwin. Some of the companies marched fifteen hundred miles in this change.

The enormous territory over which the regiment was scattered, the predatory disposition of the Indians, and the entirely inadequate force of troops, kept the companies of the regiment on the keen jump until it left for the States to take part in the Civil War. The country from Denver to Las Nogales, and from Texas to Utah, was within the sphere of its operations, and it was required to restrain and subdue hostile Indians outnumbering it fifty to one. It would take a volume to give any definite notion of its field work, or even of the scouts and expeditions upon which the enemy was met and defeated with more or less loss in killed and wounded.

Captain Gibbs came near losing his life from a dangerous wound, March 9, 1857, in the Mimbres mountains. Two larger expeditions were made the same year against the Coyotero and Gila Apaches, each having several encounters with losses. Colonel Loring, with K and detachments from other companies, left Fort Union, April 8, 1858, and joined the Utah expedition, in which he commanded a battalion, marching past where Denver now is and old Fort Bridger, returning to Union, September 14th, direct

from Salt Lake. In the meantime A, C, F, H and I, were participating in the Navajo war, of which Colonel Lane has told us something, and it is hoped that General Averell will tell us more in his forthcoming book. The latter was wounded October 9, and in this chronic warfare brave Captain McLane fell at the head of I, in an engagement at Cold Spring, near the southern base of Black Rock, October 13, 1860. Just before the charge he handed his flask to a comrade whom he had challenged and said, "Let's take a drink; it may be our last together."

While the companies were scattered at these remote stations and camps, weeks behind the news of current affairs, and one-third of our people had plunged into secession believing it right, another third declaring coercion wrong, and but the other third taking the stand that saved the Union, the impotency of the administration seemingly acquiescing in the claimed right of secession; some of the officers imbibed the epidemic political heresy of "State's Rights," and at no little sacrifice, cast their lots with the seceded States, breaking close, tender and cherished ties of comradeship, and severing their connection with a service they revered and had honored. This is no apology for disloyalty to this Union, but a statement of circumstances that historical fairness demands. The rank and file remained loyal to a man. Those who quit at this juncture were Loring, Crittenden, Lindsay, Walker, Claiborne, Maury, Baker, W. H. Jackson, "Joe" Wheeler, McNeill, Kerr, Henry and Watts. The last three had never joined for duty, and were of the regiment only on paper.

The companies of the regiment operating against the Mescalero Apaches were particularly active in the winter and spring of 1861, the headquarters of the regiment being in the field most of the time. McNally with detachments of B and F had a stubborn fight at Mesilla, July 25, 1861, with the new enemy in rebellion, sustaining considerable loss, McNally being seriously wounded. The abandonment of Fort Fillmore at midnight of the 26th by Major Lynde, district and post commander, and his surrender at San Augustin Springs the next day, caught not only McNally but Gibbs, who had just met them escorting a train. So two officers and 88 men of B, F and I, were made paroled prisoners through treason, or the enervating mental effects of long blind obedience in intervals of peace, when officers are charged with responsibilities but entrusted with little discretionary authority. It was mutiny to disobey a traitor or an imbecile.

These paroled prisoners were all put in F and sent to Fort Wayne, Michigan, to serve until exchanged, but they soon dwindled down to nothing by discharge, desertion and death. Many, however, turned up in the ranks again. The changes made Simonson, colonel; Ruff, lieutenant colonel, and Roberts and Duncan, majors.

Notwithstanding two more "troops," as they were now called, were given the regiment, the promotion and detail of officers so reduced their number for duty, and the lack of recruits the enlisted strength, that A, B and H had all their men transferred to other troops in August, and the regiment became only a battalion. Roberts was in command.

Late in September, Morris, with C, G and K, engaged and defeated a rebel force of Texans near Fort Thorn; E was way out near Fort Wise cov-

ering that country; I was drilling as a light battery, and carried off the honors at Val Verde, February 21, 1862, where McRae fell with many of his men,—C, D, G and K also participating. C and K had an engagement with Indians in Comanche Cañon, March 3d, Lieutenant Wall among the wounded; and C and E engaged the rebels at Apache Cañon the 26th, and Pigeon's Ranch the 28th, Major Duncan being wounded at Apache Cañon. G and K struck the retreating rebels again near Albuquerque, April 9th, and again near Peralto the 15th, D, E and I participating, Morris in command owing to Duncan's wound.

From the causes mentioned the men of D and E were transferred, May 15, 1862, to the four remaining troops which were to constitute the regiment until the following March. A rebel force demanded the surrender of K, May 21, but got a fight and was driven off. "Jerry" Russell, acting second lieutenant, in command of a detachment of C, had a fight with Indians, June 18, in Cañon Ladrone.

In consequence of the retirement of Colonel Simonson, September 16, 1861, Marshall S. Howe was promoted colonel of the regiment under the new system, which, however, did not repeal the law which made promotion lineal in the regiment. But appeal and protest were alike in vain. He joined July 10, 1862, and in September the four troops were concentrated at Fort Union, and on the 30th started for Jefferson Barracks, where they arrived November 23d after a march of 1280 miles.

In December, 1862, the four troops—C, G, I and K—were transferred to Memphis, Tenn., where they were joined by B and F, which had been filled at Columbus and had just joined after a raid up the Tennessee River. The regiment was first attached to the 16th, and then to the 15th Corps, and on October 8, 1863, left Memphis for Corinth, Miss., thence to Cherokee, Ala., near which C, F, G and I had an engagement October 21; G and K on the 24th. Leaving Cherokee with Osterhaus' Division, the regiment had three distinct engagements the same day, October 26, near Tusculumbia. November 13, it started for Chattanooga in advance of Sherman's army, went to Dercherd and returned to Fayetteville, and then accompanied the column to Bridgeport, arriving the 15th, thence to Chattanooga the 23d; Missionary Ridge, 26th, and Cleveland, the 30th. It went on the expedition to Knoxville, via Athens, Loudon and Marysville. Leaving Knoxville December 6, it pursued the enemy's trains over the Smoky Mountains beyond Murphy, N. C., returning via Tallisco Plains, Charleston, Cleveland, Chattanooga and Bridgeport to Huntsville, Ala., December 29th, where it remained on duty until March, 1864, when it proceeded by rail to St. Louis, Mo., arriving at Camp Davidson the 7th, to leave May 20th on steamers for Duvall's Bluffs, where it arrived the 26th, left June 4th and reached Little Rock the 9th.

Captain Howland commanded the regiment from the departure of Colonel Howe in May, 1863, until his return, July 20, 1865, all the field officers—Stoneman, Roberts, Duncan, Newby and Garrard, as well as the ranking captains being absent, most of them as general officers of volunteers.

The duty in Arkansas was principally to prevent the organization of commands and to suppress guerrilla bands, escort trains, et cetera. The

large territory covered necessitated constant scouting in small detachments, which involved hard riding, much risk, but no engagements of magnitude to attract attention, while Sheridan was winning glory for his cavalry with probably no harder work.

The enemy would make no stand without having presumably a great advantage, and they were superior to the Indians and practised about the same tactics. Lieut. George Harrington was killed in action at Memphis, August 21, 1864. Captain Howland, with 150 men, was ambushed by a much superior force near Benton, September 4th, and his command badly demoralized for a time, but rallied to find no enemy. Though eleven men were lost, this first reverse in the history of the regiment was treated with some levity, and the officers interested ever heard from their fellows of "the Benton Races."

November 8, Lieutenant Wilson's picket station was surprised with an attack from these prowlers and lost some men and horses. Tarlton and Campbell with forty dismounted men had an engagement until dark, January 14, 1865, with a force in position near Dardanelles, but at daybreak found it had vanished. Though the Rebellion was on its last legs, a party attacked Carroll's patrol January 22d, not far from Little Rock. Such was their persistence and daring.

In January, 1866, A, D, E, H, L and M, were manned at Carlisle Barracks and sent to Little Rock, where they were mounted and stationed at various posts in the State. While E was en route, near the mouth of the Arkansas, the 28th, the boilers of the steamer *Miami* burst, killing 13, wounding nine, and probably drowning 12 who were missing.

In April, 1866, the regiment was ordered to New Mexico again. Its service in the States was probably the easiest it had ever experienced in the same period of time, though during the war it had no doubt marched many times the number of miles marched by any other regiment.

The troops concentrated at Camp Reynolds near Fort Smith, and marched from that place in three columns of four troops each, June 7th, 8th and 9th, making a new route to Fort Union, which it reached August 12th and 14th. From thence headquarters and B went to Fort Craig, A to Bascom, C to Wingate, D to Marcy, E and I to Sumner, G to Stevens, H to Stanton, K to Selden, L to Albuquerque, and M to Bayard, F remaining at Union. Then commenced and continued until the spring of 1870 constant, active field work, usually with handfuls of men, escorting trains and surveying parties, guarding highways and protecting flocks and people from the incursions of, and following up and punishing Comanches, Kiowas, Apaches, Utes and Navajos.

The changes in the list of officers were too numerous, and movements of troops too complicated to give them space, or even a full list of engagements. W. N. Greer became colonel in 1866, retiring in December, 1870, and giving place to J. J. Reynolds. The following engagements only can be mentioned:—Alexander and G, with Utes, October 3, 1866. Detachments of G and I near Fort Sumner, with Navajos, July 9, 1867. D with Mescaleros, near Guadalupe Mountains, October 18; and K, same date, and again near Fort Sumner, November 20, 1867. Detachment of G and I,

under Adjutant Monahan at Apache Springs, in June, 1868. Detachment of E in Mimbres Mountains, October 8th. The Canadian River expedition against the Comanches in the winter of 1868-69; and engagement on Christmas Day at Elm Creek, I. T. Detachment of B from Bayard in May, 1869. Detachment of K near San Augustin Springs, May 7. F and H with Mescaleros in San Augustin Pass, August 15th. F, with Mescaleros in Guadalupe Mountains in November; and again Christmas Day in Cañon Sanguinara, where Lieutenant Yeaton received his death-wound; and again, December 30th, on Delaware Creek. In January, 1870, a plot of the Utes and Jicarilla Apaches at the Ute agency, Maxwell's ranch, to massacre the officers and men of A was detected; the Indians were surrounded and "Corocante" made chief of the Utes.

The orders for the regiment to go to Arizona sent the headquarters with D and I to Fort Halleck, Nevada, marching via Denver to Cheyenne. Troops B, E, F, H and K, serving at the southern posts, assembled on the Mimbres for the march, leaving March 2, 1870. Captain Bourke has given, in his "On the Frontier with Crook," an account of the march of this column, stations taken by different troops, and of their busy work, no more arduous than that of the northern column, composed of A, C, G, L and M. The first three left Fort Union, March 8, picking up the other two at, and leaving Wingate, April 1st; marching up one and down another Rio Puerco, past Muddy Springs, Sunset Crossing, Hell Cañon, Cosniño Caves, Bear Springs to Prescott, and thence to different stations, A, C and G to Camp Rawlins where they arrived the 23d,—soon to change.

Indian signal smokes had been seen all along the latter part of the march, and it soon seemed that all the tribes had united in one tremendous effort to terrorize and make Arizona uninhabitable for the whites. Active operations began at once, but the troops were thinly scattered and inadequate in numbers. Wagons could not traverse this land of volcanic rocks, towering mountains and almost bottomless cañons; and there were no public pack trains, no reliable maps, and the Indian fastnesses were inaccessible and unknown. Hard as was the incessant field duty it was little worse than the equally bad fare and miserable life in tents, jacals, and dug-outs of the hot and dusty camps. So hard were the officers worked that the regimental records show but a moiety of what transpired,—nothing of the splendid work and fights of the energetic Graham and some others. General Stoneman said in his official report for the part of the year 1870-71 in which he commanded the Department of Arizona, that of thirty-odd expeditions sent against predatory Indians, twenty-five had engaged and defeated hostiles. Yet so far was this from civilization it was hardly known or noticed by the outside world.

Small as was the force and miserably supplied, the expense of the Department was appalling at Army and Division headquarters, and the mandates for retrenchments were crippling. The territorial press frothed at the mouth and its clamor relieved General Stoneman and brought in May, 1871, Lieutenant-Colonel George Crook as commander, assigned on his brevet rank as major general.

Regimental headquarters reached Camp Verde, April 8, 1871, from

Nevada, General Grover commanding; D and I, McDowell, during the spring. In the fall General Reynolds was relieved from command in Texas, and the incongruity of placing him under General Crook took the regiment to the Department of the Platte in the winter of 1871-72, marching to Yuma, transferring equipage and horses to the Fifth Cavalry, and proceeding by water around Cape San Lucas to Benicia, thence by rail to Wyoming and western Nebraska.

The engagements in Arizona were as follows:—B, near San Carlos, April 30, 1870; E, Chiquito Creek, May 25, East Fork of Verde, June 15, and Rio Verde, next day; A, Indian Springs, June 24; F, Pinal Mountains, June 25, Apache Mountains, August 1, Pinalito Mountains, October 6, and Turnbull Mountains, December 14; H, Pinal Mountains in December; Detachments of A, E and G, night of January 7-8, 1871; A, cañon of Mazatzal Mountains, January 10; F, three in February; E and G in Pinal Mountains in February; K, Peloncilla Mountains in March and Gila Mountains the 25th; B, near Date Creek, April 1; F, Sierra Ancha, April 4, and Apache Mountains the 11th and 12th; K, Dragoon Mountains, April 16; F, Whetstone Mountains, May 5, and Guachaca Mountains, June 1st and 10th; A and detachments of E and G, two on East Fork of the Verde, June 8, and cañon of Mazatzal Mountains and Wild Rye Creek, the 9th; M, a number in the Sierra Anchas in June; Detachment of K, Horseshoe cañon, October 24.

The foregoing by no means complete list is given place as the incomparable service of the regiment in Arizona has been belittled; indeed its splendid fighting record from the first has been criticised,—from reasons to be surmised. This partial showing of the conspicuous work of F, shows also, somewhat the character of its commander,—Lieutenant Howard B. Cushing,—who fell in the affair of May 5, 1871. He was a brother of the immortal Cushing who blew up the *Albermarle*, and of the no less gallant Alonzo H., who fell at Gettysburg.

Limits forbid an account of the wanton massacre by Tucson "toughs" of Indian women and children at Camp Grant in 1871, over which the local press involved Lieutenant Whitman in trouble, honoring him with so much abuse that Herbert H. Bancroft dignifies it with a place in his history. The last detachment of the regiment rather rejoiced in shaking the hot Arizona dust from their feet as they stepped on the steamers at Yuma, January 11, 1872.

In the Department of the Platte the troops were first stationed at Forts Sanders, Russell and McPherson, and Sidney Barracks, which they reached early in March after being snow-bound in the Rockies en route. Active work commenced before the end of the month and continued for ten years; at first only in summer, with stations on the railroad in winter, but soon the severe weather of that rigorous climate was no bar to the field duty the year around.

Besides protecting the frontiers of Nebraska, Kansas and Colorado, the regiment guarded the enormous reservation of the Sioux, Cheyennes and other tribes. The stations were located between them, and their relatives and allies in the Indian Territory, between whom there was a constant intercourse by skulking and freebooting bands that gave much annoyance.

A at Sydney, and later E and G, were between those great tribes and the buffalo country,—a game which the Sioux believed to be their God-given heritage, and which they would hunt with or without leave. The young braves were constantly making their raids upon the cattle herds and ranches of the settlers and friendly tribes.

These serious annoyances kept the regiment on the go over the broad barren expanses of country where wagons could not be used. There were none of the fine pack-trains since introduced, and scouting was attended by more dangers from cold and exposure than from the Sioux, though they were far better armed than any Indians encountered before. The chronic state of semi-war was fatal from hardships and exposure, principally, until the commencement of 1876, when operations commenced on a scale so much larger, that only the most important events can be noticed here.

General Crook took command of the Department in the spring of 1875, and for ten years the service of the regiment was connected with his. The Sioux claimed that all the outrages were committed by the northern Cheyennes and Minneconjous, and were charged up to them by the whites. In a measure this was true, but the Sioux were no angels. It was determined to bring the former down to the Sioux agency for control. They would not come by invitation and it was determined to make a winter campaign against them. Five troops of the regiment, five of the Second, and two companies of the Fourth Infantry, concentrated at Fort Fetterman, which post it left, March 1, 1876, under the doubled-headed command of Generals Reynolds and Crook. The expedition furnished material for a longer narrative than all this. Let it answer, that after many weeks marching from Cheyenne, past the Big Horn Mountains almost to the Yellowstone, and return, having many night attacks by the enemy, on the 17th it attacked and destroyed Crazy-Horse's village of 105 lodges. Hardly an officer or man escaped serious frost bites or frozen limbs, and the command was incumbered with many sick and injured, without transportation for them other than that improvised.

An unfortunate controversy that followed this really successful and splendid victory perverted the facts, which may sometime be published in the interest of truthful history.

The campaign that followed in the summer involved another return to the Big Horn Country, and embraced the gallant feat of the 9th of June, when Mills' battalion plunged into and crossed the swollen Tongue under fire, and charged and routed a large force which had attacked the whole command. Then the battle of the Rosebud on the 17th, defeating the united forces of the Sioux, which, one week later, defeated and almost destroyed General Custer's command on the Little Big Horn, which latter sad event struck the country with such awe as to smother all consideration of the former, though it was probably the greatest Indian battle in our history—some 1400 soldiers and friendly Indians, against some 5000 hostiles. The brunt of the battle fell upon D, F, I and L, of the Third, which lost some ten killed and forty-odd wounded, Captain Henry among the latter.

Mr. Finnerty in his "Bivouac and Camp Fire" has given a conscientious, though not entirely correct, account of the summer campaign and

large long-drawn-out expedition to the Yellowstone and return by Heart River and the Black Hills, known as the "Starvation March," where the troops were for many rainy days reduced to horse-meat alone for subsistence in their long muddy march; and the fight at Slim Buttes, September 9, by a battalion of the Third under Mills and Crawford, where Schwatka made his gallant charge through the village of 35 lodges of American Horse and Roman Nose, Von Luettwitz lost a leg and many men were killed and wounded.

The Mackenzie expedition in the autumn of 1876, and its fight with Dull Knife, in which H and K participated, has been treated exhaustively by the JOURNAL. Omitting the numerous small encounters with Indians and road-agents, the campaigns that followed found the regiment, or part of it, wherever there was anything to be done, until the Sioux were once more in hand.

Brief notice must be taken of the Cheyenne outbreak in the Indian Territory in 1878, which put all the troops throughout the West upon the *qui vive*. Trains of cars were held in readiness at every station occupied by troops along the railways, and a battle was fought in western Kansas, where Colonel Lewis was killed; but the Cheyennes got away. New troops were switched on behind them at every point where their presence was ascertained, but they eluded every effort and made their way to the Sioux country.

The regiment was on an expedition to the Little Missouri country and camped on the Belle Fourche, when it was notified and ordered to push for the Sioux agencies, and below them, to head the renegades off; which it did by forced marches. After floundering in the sand-hills for days, freezing from absence of wood and suffering for water, B and D, under Johnson and Thompson, finally captured the band October 23d, and took it into Camp Robinson, having a revolt, however, on Chadron Creek which required the aid of other troops and a part of the Seventh to suppress. The Indians declared they would die to a man before they would return to the Indian Territory, and they kept their word. Securing arms and ammunition by the connivance, no doubt, of friendly (?) Indians, they revolted the night of January 9, 1879, shot down the sentinels and made their escape. The troops during intensely cold weather had a series of engagements, ten men killed and five wounded, before the last hostile Cheyenne was killed—the 22d—Captain Wessells being shot in the face in the last charge.

In the summer of 1879 the Utes murdered their agent—Meeker—treated his wife and daughter worse as captives, and slaughtered the agency employés. E of the Third and a troop of the Fifth, with some infantry, were dispatched to the scene in all haste. In the battle which followed, September 29th, Major Thornburg was killed, and gallant old Captain Lawson with E won proud laurels in averting outright disaster. They were complimented by a resolution of the Wyoming Legislature, but otherwise received faint praise, though the troop lost about fifty per cent. in killed and wounded, and held the camp until relieved.

General Reynolds retired June 25, 1877, and was succeeded as colonel by Thomas C. Devin, who died April 4, 1878; Washington L. Elliott, who retired March 20, 1879; Albert G. Brackett, retired February 18, 1891, to be

succeeded by Albert P. Morrow, who retired August 16, 1892, promoting Anson Mills, the present colonel.

The troops of the regiment were scattered as usual at different posts in the Department, A and M at McKinney, 200 miles from the railroad, when the Warm Spring Chiricahuas broke out, at San Carlos, Arizona, in the spring of 1882. And although the regiment had served a tour in Arizona while others nearer had not, it was ordered there by telegraph. Making forced marches to the railway stations, some of the troops getting snow-bound en route, they were dropped in a few days' time through thirteen degrees of latitude and down some five thousand feet of altitude into a climate where they had to gasp for breath.

The older officers found a transformation scene from the Arizona of ten years before. Now there were comfortable posts fairly supplied, and railroads and telegraph lines that connected them with the outer world. The utter loneliness and painful stillness were gone, but the lofty mountains and yawning cañons and their old enemy, less savage and numerous, were still there.

Active work commenced at once, with unacclimated men and horses that were soon worn out, principally in chasing false reports from the distracted population. The hostiles had crossed into Mexico before the regiment arrived (in May), but they left their usual trail of blood and thousands of turbulent Apaches behind. The last soon murdered the chief of Indian police at San Carlos Agency, committed other outrages, and broke for the mountain fastnesses. The major portion of the regiment had a long stern chase, and in time participated in the hardest fought engagement on Arizona soil,—Chevelon's Fork, July 17, 1882,—the Apaches receiving a lesson which has kept that particular band docile and manageable ever since. Twenty warriors were killed, without counting other casualties. Among our wounded were Lieutenants Converse and Morgan. A part of the Sixth Cavalry was there and did its full share, but the Third made the longest marches.

General Crook took command of the Department soon after, and in September placed Captain Crawford in charge of the Indians. The valuable service rendered by the captain, and by Lieutenants Davis, West, Dugan and Gatewood, in handling and controlling the thousands of Indians in Arizona, can never be estimated. The theme properly treated would make no small acquisition to history.

In the spring of 1883 Captain Crawford was on the border after Geronimo and band. The outrages committed by the Chiricahuas from across the line were laid at the door of the reservation Indians, and excited the young braves to skylark, or chafe under restraint. Crawford formulated a plan which General Crook allowed him to execute. He attempted it with his scouts, but the protocol allowed troops to cross the boundary line only while in hot pursuit of hostiles. The murder of Judge McComas furnished this plea, and the capture of "Peaches" by Davis, a key to the Chiricahua stronghold. General Crook rushed down with some troops of the Third and Sixth, and crossed before the order from Washington prohibiting it reached him,—on a slow horse.

Crawford, Mackey and Gatewood, pushed ahead into the Apache fastnesses in the Sierra Madre, and, May 15, defeated them in their very strongholds. Accounts of this expedition err: General Crook learned of this fight only a day or two after. The Chiricahuas soon sued for peace, and Geronimo came in and surrendered to Crawford, and all were placed under the immediate charge of Davis.

To give the Tenth a change, the Third was treated to a genuine surprise in 1885, by an order to go to Texas. It concentrated at Bowie Station, April 13, for the march which involved a thousand miles for some of the troops, and it may be said, for the benefit of some of the numerous writers of magazine articles on marching cavalry, that not a public animal was lost on the trip. Before some of the troops had reached their station, the Chiricahuas had taken advantage of the departure of the troops whose officers knew them individually, their traits, habits, and trails, and the arrival of new troops with worn-out horses, to break out and leave another trail of blood. Lieutenant Davis had been left with these Indians, and immediately after the outbreak Captain Crawford was ordered back to the scene of the trouble, and the troops of the regiment were ordered out to patrol the upper Rio Grande, to protect the Texas frontier, and to render such aid as possible to the troops in Arizona operating against the wily foe. But while performing this duty, trouble commenced in the Indian Territory, and these same troops were hurried to the nearest railroad station and embarked without further preparation for the new field of operations, from which some of them did not return for nearly two years—marching 1500 miles. In the meantime the officers of the regiment in Arizona had been constantly in the field following and fighting the hostiles, and Captain Crawford had a last hard fight with them on January 10, 1886, at Nacori in Sonora, Mexico. He captured their camp, baggage, women and children. The bucks had escaped only with their arms into the ravines at dark, but had promised, through the squaws, to come in next morning and surrender. The morning brought an attack, which was at first supposed to be by Geronimo and his warriors, but which proved a lawless band of Mexicans, who suspended their fire for a time, and then, during the parley, treacherously fired a volley that sent a bullet through the brain of Captain Crawford. But this was soon avenged by a contest that killed the commander and two officers, routing the entire command. Subsequently they pleaded a mistake, and Lieutenant Maus, accepting the excuse in good faith, ventured within their lines, and gave them a note conceding the sad mistake. Thereupon he was made a prisoner and held until he gave some pack-mules as a ransom. Our Government subsequently demanded recompense for the mules, but, notwithstanding the second act of treachery, the loss of Captain Crawford, who had given his energy and health and finally yielded his life to the service, was not sufficient to arouse the Department of State to any decided action. Fort Crawford was named in honor of the noble captain, as were Ewell, McLane and McRae for the gallant fellows who fell before him. The request to call the post at Eagle Pass Fort Yeaton did not bear fruit.

During the last tour in Texas the cavalry was degraded into mounted

infantry. Its most onerous duty was the consumption of contractor's forage and trying to keep cool, until the local press gave Garza sufficient notoriety to secure some lawless adherents who created trouble in 1891-93. This was known as the "Tin Horn War," from the sensational dispatches furnished the press. It involved much hard riding, however; several skirmishes and some losses, but most of the blood spilt resulted from thorns of the chaparral. Captain Hardie, with G, did much effective work and carried off the honors, where all were working hard.

In the summer of 1893 the regiment was ordered to Fort Riley and posts in Oklahoma where it now serves, somewhat degenerate in the art of war but ready to respond to the first trumpet call for warriors, and will feel proud of any regiment in our service that has in the same period marched more miles, had more fighting, lost more officers and men without disaster, or which excels it in any of the essentials of real soldiering, and will cheerfully grant it the palm, and if in a foreign service, will yield gracefully to its claims to superior excellence.

THE FIRST REGIMENT OF ARTILLERY.*

BY MAJOR WILLIAM L. HASKIN, 1ST U. S. ARTILLERY.

INTRODUCTION.

THE first Congress of the United States under the Constitution (March, 1789) found already in existence a "Frontier Corps" of infantry 700 strong, and a battalion of four companies of artillery.

According to Heitman's "Historical Register of the U. S. Army," one of these companies (Doughty's) was retained in service from the Revolutionary army: one (Douglass') was raised under Resolve of Congress of date June 3, 1784; and two were organized under Resolve of Congress of date October 20, 1786, when the four companies were organized into a battalion under Major John Doughty.

This battalion was represented at the battle on the Miami, October 19 and 22, 1790.

When the "Legion of the United States" was organized in December, 1792, one of these companies was attached to each of its sub-legions, and a major-commandant of artillery (Henry Burbeck) was on the staff of General Anthony Wayne, commanding the Legion. This legionary organization ceased in 1796.

In 1794 a "Corps of Artillerists and Engineers" was organized, which included the four companies of artillery then in service and had sixteen companies in four battalions, with a lieutenant-colonel commandant and four majors. In 1798 an additional regiment of "Artillerists and Engineers" was authorized with 12 companies, increased in 1799 to 16 companies.

In 1802 there was a reduction of the army. The Engineers were separated from the Artillery and the latter formed into one regiment of 20 companies with a colonel (Henry Burbeck), lieutenant-colonel, and four majors.

This was the first First Artillery.

In 1808 a regiment of ten companies called the "Light Artillery" was formed, but it was light artillery only in name, almost all of its service being performed as infantry.

In 1812 two regiments of artillery were added to the army, each having 20 companies; but barely two years later the three artillery regiments were merged into a "Corps of Artillery," with six lieutenant-colonels, six majors, and 48 companies in twelve battalions. The Light Artillery regiment was not affected by this change.

During the War of 1812 the Artillery of the army was represented in the following engagements:—

Battle of Maguago, Mich., Aug. 9, 1812 (1st Art).

* See "The History of the First Regiment of Artillery," by Brevet Major Wm. L. Haskin. Fort Preble, Me., 1879. pp. 668.

Attack on Queenstown Heights, U. Can., Oct. 13, 1812 (L. A. and 2d Art).
 Capture of York (now Toronto), U. C., April 27, 1813 (L. A. and 3d Art).
 Fort Meigs, Ohio, May 5, 1813 (L. A.).
 Fort George, U. C., May 27, 1813 (L. A., 2d Art. and 3d Art).
 Action at Stony Creek, U. C., June 6, 1813 (L. A. and 2d Art).
 Battle of Chrystler's Fields, U. C., Nov. 11, 1813 (L. A., 2d Art. and 3d Art).
 Defense of Fort Oswego, N. Y., May 5 and 6, 1814 (L. A. and 3d Art).
 Battle of Chippeway, U. C., July 5, 1814 (Corps of Art).
 Battle of Niagara Falls, U. C., July 25, 1814 (Corps of Art).
 Battle of Plattsburg, N. Y., Sept. 11, 1814 (L. A. and Corps of Art).
 Defense of Fort McHenry, Md., Sept. 13, 1814 (Corps of Art).
 Defense of Fort Erie, U. C., Aug. 15, 1814 (Corps of Art).
 Battle of New Orleans, La., Dec. 23 and 28, 1814, and Jan. 8, 1815 (Corps of Art).

At the close of the War of 1812 the army was reduced and the Corps of Artillery retained only 32 companies, in eight battalions; but the Light Artillery again escaped reduction.

In 1821 the army was again reduced, and an entire change of organization was effected by consolidating the Light Artillery, the Ordnance, and the Corps of Artillery into four regiments of artillery, having nine companies and ten captains each, the additional captain performing ordnance duty. One company in each regiment was to be a light battery, but until 1836 it was so only in name.

With the following modifications these are the organizations now in existence known as the First, Second, Third and Fourth regiments of Artillery.

At first each regiment had a colonel, lieutenant-colonel and one major. A major was added to each by the Act of February 11, 1847, and still another major to each by the Act of July 28, 1866.

In 1832 the Ordnance was separated from the Artillery, the ordnance captains joining the new corps, but artillery lieutenants doing the subordinate work of the ordnance under four-year details. This continued until the Act of July 5, 1838, completed the severance.

This last named Act added Company K, and the Act of March 3, 1847, added Companies L and M to each regiment.

The Artillery has been united with the Engineers, the Ordnance, and the Light Artillery. It has had a battalion, regimental, and corps organization; during the Civil War it was even without organization—into any higher unit than the single battery. It would seem that the entire round of experiments had been tried. The present organization into regiments has lasted far longer than any other and appears to have sustained the test of prolonged trial, in peace at least, fairly well. It bids fair to continue indefinitely, for it is impossible to obtain any degree of unanimity among artillery officers as to what should take its place.

THE FIRST REGIMENT OF ARTILLERY

was organized under the Act of March 2, 1821, by the assignment to it of officers already commissioned in the Ordnance Department, Light Artillery

regiment, or Corps of Artillery. Its ranks were filled by the transfer of whole companies from the Light Artillery, or the Corps of Artillery.

Company A came from the L. A. and was first organized as a company in 1812.

Company B also dated from 1812 and had been Company D, Second Battalion, C. of A.

Companies C and D, dating from 1815, came from the L. A.

Company E had been Company N, Second Battalion, C. of A., organized in 1812.

Company F had been Company B, Fourth Battalion, C. of A., and dated from 1812.

Companies G and H came from the L. A.; G dating from 1812 and H from 1808.

Company I had been Company A, Second Battalion, C. of A., and was first organized as a company in 1798.

Of the 47 officers of the regiment, 13—including Colonel Porter—came from the L. A.; 23—including Major Walbach—from the C. of A.; 8—including Lieutenant-Colonel Bomford—from the Ordnance; and three—Captains Wm. J. Worth and Henry Whiting, and Lieutenant W. S. Harney—from the Infantry. Harney remained in the regiment less than two years, but Worth belonged to it until he entered the Ordnance in 1832, and Whiting until he became a quartermaster in 1835.

Companies A, B, E, F, G and H had taken an active part in the War of 1812, and brought with them into the regiment a record of gallant service already performed.

There is little of interest in the history of a regiment in time of peace, and the long period of fifteen years which elapsed before the breaking out of the Florida War was almost uneventful.

The regiment was at first stationed at the posts in New York Harbor and on the New England coast, but after a service there of six years it was sent to the more southerly posts between Annapolis, Md., and Charleston, S. C., where it remained, though with many interchanges of station by the several companies, until January, 1836, when eight companies reached Florida, followed in October of the same year by the ninth.

The Florida War brought little glory to any who took part in it, the difficulty being, not to fight the enemy, but to find him. "A barren warfare, marches without battles, scoutings by day, alarms by night; continual little annoyances, so trifling as to be beneath narration, yet in their frequency and troublesomeness as bad on the spirits as a defeat and reducing the duty list as much as a battle. The climate was an enemy more successful than the Seminoles, and its victims counted not by single files, but by platoons if not battalions."

For two years the regiment performed its share of this work, taking part in eleven more or less important engagements with the Indians.

The following named officers were present with the regiment during its service in Florida and by their gallantry in action and fidelity to duty—in this case a thankless duty bringing no other reward than the consciousness of duty well done—reflected credit upon the regiment:—Colonel Eustis,

Majors Wm. Gates and B. K. Pierce; Captains R. M. Kirby, Giles Porter, David Van Ness, Justin Dimick, Lemuel Gates and D. D. Tompkins; and Lieutenants Geo. Nauman, Francis Taylor, J. R. Irwin, J. H. Prentiss, Geo. Watson, E. A. Capron, D. E. Hale, John F. Lee, Alfred Herbert, Wm. H. Betts, P. V. Hagner, M. J. Burke, J. S. Hatheway and Wm. H. Fowler.

In 1838 the regiment was sent to the northern frontier of the U. S. in New York and Vermont, and shortly after reaching its new stations a company was added to each of the regiments of artillery. The additional company of the First was mounted and became Battery K. Although Company A had been the designated light battery since 1821 it had never had a horse attached to it, but had performed the same duties, and in the same way, as the other companies had.

In 1840 the regiment was moved to the boundary line between Maine and New Brunswick. At this time war with Great Britain was threatened, the chief cause for the dispute being the location of the boundary line between the United States and British territory, but it was fortunately averted. The regiment remained on this line, however, until just before the outbreak of the Mexican War, when four companies went to Texas and six to Florida.

In the campaign of 1846-47 on Taylor's line in Texas and northern Mexico, Companies B, C, D, E and Battery K, took an active part, the regiment being represented by one or more of its companies in the battles of Palo Alto, Resaca de la Palma, Monterey and Buena Vista.

The campaign of 1847 in central Mexico under General Scott brought the greater part of the regiment under fire, and Companies B, D, F, G, H and Batteries I and K, some or all of them, took part in the siege of Vera Cruz and the battles or skirmishes of Cerro Gordo, La Hoya, Oka Lake, Contreras, Churubusco, Chapultepec and City of Mexico. Company I was made a light battery after the battle of Cerro Gordo.

There was then no retired list, and the field officers of the regiment were so infirm or so far advanced in years as to be wholly unable to undergo the fatigues of active service. From this it resulted that, after Vera Cruz and Cerro Gordo had been fought, the senior captain present—Brevet Major Justin Dimick—commanded the battalion.

The campaign was one of the most brilliant recorded in history. More recent military operations on a very much larger scale have dimmed the memory of its successes, but the military student will always admire the extreme audacity which prompted it, and the manner in which the troops—the whole army—coöperated to make it a success.

The First Artillery received the commendation of its brigade and division commanders for each and every action in which it was present, and its losses—21 per cent. of its whole strength in killed and wounded—attest its military zeal and fidelity to duty. The battle of Churubusco was especially fatal, for it cost the regiment the lives of Capt. E. A. Capron, Capt. M. J. Burke, Lieut. J. F. Irons, and Lieut. Satterlee Hoffman. Lieutenants Martin and Brynton were among the wounded, and the total loss in officers and men was 45 out of a total of less than 300.

The following named officers of the First were present during the Mexican War, in one or both campaigns:

Majors Levi Whiting and Thos. Childs.

Captains Justin Dimick, L. B. Webster, Geo. Nauman, Francis Taylor, J. H. Winder, J. B. Magruder, E. A. Capron, M. J. Burke and J. S. Hatheway.

Lieutenants J. L. Donaldson, W. W. Mackall, B. H. Hill, Wm. H. French, Jos. Hooker, Henry C. Wayne, Irvin McDowell, J. A. Haskin, H. D. Grafton, J. B. Ricketts, S. K. Dawson, J. G. Martin, J. F. Irons, J. M. Brannan, Isaac Bowen, Seth Williams, Abner Doubleday, J. P. Johnstone, Henry Coppée, E. C. Boynton, T. J. Jackson, Truman Seymour, Satterlee Hoffman, J. B. Gibson and A. P. Hill.

Many of these names will be very familiar to all who have read the history of a later and greater war, as well as to the students of this foreign war in which these men were such prominent actors. At this date (November, 1894), Professor Henry Coppée, of Lehigh University, is the sole survivor of all of "Ours" who took part in the War, and he was among those who entered the City of Mexico with Scott's victorious army.

Upon the evacuation of Mexico in 1848 the First Artillery was stationed upon the Atlantic coast from New York to Fort Washington, Md., with the exception of Companies L and M, which were sent to Oregon. In the following year, however, four companies went into the interior of Florida, and in 1850 four additional companies went to the Gulf States and Battery I to California. Companies L and M were in Oregon but four years when they were transferred to the Atlantic coast, reorganized, and sent to Florida.

Service in that State was found to consist, as usual, of fruitless marches and countermarches, scouts in this direction and in that, and in years of service scarcely an event worthy of record. Filibusters in Louisiana and Texas in 1851 made some slight break in the monotony of garrison life for several of the companies, and in 1856 the Indians were fought, once in Florida and several times in Texas. In 1859 the outlaw band of Cortinas attacked and then blockaded Brownsville, Texas, but was in turn attacked, beaten, and broken up by a force including three companies of the First Artillery.

With the closing months of 1860 the regiment completed its tenth year of continuous service in the Southern States. During this long period no foot company of the regiment (except the Oregon companies) had been stationed farther north than Fort Monroe, and the regiment had never had less than four companies in the Gulf States, while the usual number was eight. The detail for the Artillery School took two companies northward, and the companies in Florida were occasionally sent to Charleston to recuperate, but the regiment—generally—had been a stranger to the northern climate for ten long years.

In January, 1861, Companies A and C were at Fort Monroe; B at Key West Barracks; D at Baton Rouge Barracks, La.; E and H at Fort Sumter, S. C.; F, L and Battery K at Eagle Pass (Fort Duncan), Texas; G at Barrancas Barracks, Fla.; Battery I at Leavenworth, Kansas, and M at Brownsville, Texas.

The excitement throughout the South at this time in regard to the secession of the States bid fair to lead to violent seizure of Government property, and made it necessary for individual commanders to judge for themselves in many cases as to the proper course to pursue for the protection of the public property under their charge or the preservation of their commands.

In the exercise of this judgment Major Robert Anderson had just transferred his command—Companies E and H—from Fort Moultrie to Fort Sumter; Company B, in January, occupied Fort Taylor; and Company G, also in January, moved from Fort Barrancas to Fort Pickens. Company D, at Baton Rouge Barracks, La., 500 miles from any possibility of support was forced to leave for the North in January; and the garrison of Eagle Pass—Companies F and L and Battery K—just escaped being included in Twigg's surrender by marching to Brownsville, where, with Company M, it embarked for loyal territory in March.

On the 1st of April, 1861, but five posts within the limits of the seceded States were still occupied by United States troops. These were Fort Monroe, Va.; Fort Sumter, S. C.; Fort Taylor, Key West, Fla.; Fort Jefferson, Tortugas, Fla.; and Fort Pickens, Pensacola Harbor, Fla. Of these the four last named were garrisoned wholly or in great part by the First Artillery, and Company C was among the troops composing the garrison of Fort Monroe.

The story of Sumter has been told again and again. It fell to the lot of the First Artillery to fire the first shot in defense of the flag, and that shot had a result such as the wisest Southerner could not have foretold. Few Northerners even could foresee that it announced the beginning of the end of human slavery in North America.

At an early period of the war it became evident that the companies of the regular artillery were all or nearly all to serve as light batteries. No explicit orders to that effect appear to have been issued, but company after company was mounted until the twelve companies of the regiment had all been equipped either as mounted or as horse artillery. The practice of uniting the batteries by twos to man single batteries began early in the war and continued till the end.

Until May, 1864, Batteries E, G, H, I and K, served with the Army of the Potomac; B, C, D and M, on the southern Atlantic coast; and A, F and L, in Florida and Louisiana; but in the latter part of 1864 all were in Virginia.

It is not possible within the limits to which this sketch must be confined to give any adequate account of the 98 battles, sieges, combats, actions, skirmishes or affairs, in which the regiment was represented during the Civil War. Batteries were present in all the chief engagements in Virginia, Maryland, Florida, Louisiana, and the coast of South Carolina. They were at Antietam, Appomattox, Bull Run, Cedar Creek, Chancellorsville, Cold Harbor, Drury's Bluff, Fair Oaks, Fisher's Hill, Fort Bisland, Fort Pickens, Fort Sumter, Fredericksburg, Gettysburg, Glendale, Irish Bend, Mansura, Olustu, Petersburg, Pleasant Hill, Port Hudson, Trevillian Station, Winchester and Williamsburg.

Two batteries, one of the First and one of the Fifth, were in the very vortex and crisis of the battle of Bull Run; a battery of the First was in action nearly all day not far from "Deadman's Lane" at Antietam; in the line of thirty pieces which finally checked the victorious Confederates on our right at Chancellorsville were six belonging to the First; the "Crest of the Rebellion" at Gettysburg found two batteries of the First in the line against which it broke; when the last obstacle to the free navigation of the Mississippi was overcome at Port Hudson, three batteries of the First Artillery could claim their fair share of credit for the achievement; and when Early was sent "whirling through Winchester" two batteries of the First were there to assist him along.

On the 12th of April, 1861, a First Artillery garrison opened the war, and on the 9th of April, 1865, a battery of the regiment fired the last cannon-shot at the principal army of the Confederacy and almost the last shot of the war. The flag of the United States which was first lowered to the Confederate forces in Charleston Harbor, was, almost exactly four years later, raised in the capital of that Confederacy by an officer of the First Artillery.

The number of officers, then or formerly of the regiment, who were made general officers during the Civil War is so considerable as to merit notice. On the Union side these were:

Daniel Tyler.
Geo. D. Ramsay.
Jacob Ammen.
Montgomery C. Meigs
Israel Vogdes.
Wm. H. French.
Joseph Hooker.
Irvin McDowell.
Joseph A. Haskin.
James B. Ricketts.
John M. Brannan.
Seth Williams.
Abner Doubleday.
Truman Seymour.

James B. Fry.
Jefferson C. Davis.
Absalom Baird.
Adam J. Slemmer.
Alvan C. Gillem.
Henry W. Slocum.
John M. Schofield.
John W. Turner.
Robert Anderson.
Erasmus D. Keyes.
Richard H. Jackson.
Edmund Kirby.
Judson Kilpatrick.
Lewis G. Arnold.

On the Confederate side they were:

J. B. Magruder.
H. C. Wayne.
J. G. Martin.
Samuel Jones.
T. J. Jackson (Stonewall).
A. P. Hill.

Daniel Leadbetter.
J. E. Slaughter.
A. R. Lawton.
F. A. Shoup.
I. R. Trimble,
W. W. Mackall.

The theory upon which our army is said to be maintained,—for the purpose of providing trained officers for higher rank in the militia or volunteers,—would seem to have been justified in the case of this particular regiment, since it was able to furnish 40 general officers when called upon for that purpose.

Between December, 1861, and the 1st of January, 1865, sixty-eight officers are named upon the regimental return, and 38 of these were, for a part of their service at least, on detached duty. This number includes those serving with increased rank in the volunteers. When the number absent on account of wounds or from sickness is taken into account it becomes more easy to comprehend why it was, that during the Civil War it was very seldom the case that one-half of the officers belonging to the regiment were actually serving with it.

Up to the date of the battle of Gettysburg the average number present was twenty; but from that time till the close of the war the average was only thirteen, and there were at no time so many as twenty officers with their batteries. From the battle of Bull Run to the surrender at Appomattox the average number present was only 16.57, yet the regimental returns for that period show a total of 19 killed and wounded, and—what is a little remarkable—no deaths from disease.

The average strength of the regiment in enlisted men for this period was 770. Of these 54 were killed, 216 wounded, 71 missing, and 91 died of disease; making the total loss 432. In Fox's "Regimental Losses of the American Civil War" a list of the light batteries (regular and volunteer) which suffered the heaviest losses is given on page 463. Sixty-two batteries are named and among them are Battery M, at Olustee; I, at Bull Run and again at Gettysburg; H, at Chancellorsville; and A, at Port Hudson.

During the Civil War the headquarters of the regiment never took the field. For several months in 1861 there was actually no regimental commander. The sergeant-major probably received and filed the company monthly returns, but no regimental orders were issued nor any other business transacted such as properly pertains to the office of a regimental commander. Colonel Erving was retired in October, 1861, and was succeeded by Colonel Justin Dimick with station at Fort Warren, Boston Harbor. In November he named Lieutenant Dimick as the regimental adjutant but in the July following the adjutant applied for field service and from that time until the close of the war there was no officer actually serving as adjutant of the regiment. There had been no regimental quartermaster since June, 1860, and none was appointed till June, 1876. Colonel Dimick nominally commanded the regiment until the close of the year 1863, when Captain Wm. Silvey, the senior officer in the regiment not holding higher rank in the volunteer service, was directed to relieve him. He acted as regimental commander, with station at Concord, N. H., until January, 1866.

Almost at the very beginning of the Civil War, therefore, the regimental organization simply went to pieces. All the field officers held higher volunteer rank or were superannuated, and there was no regimental staff. The sole duty left to the nominal regimental commander was to consolidate the monthly returns of the individual batteries. Captains appointed and mustered their own non-commissioned officers without any reference to him, and he exercised no control of any kind over his companies. Yet the artillery, without exception, did exceedingly well during the war and contributed largely toward the final result.

The natural inference is, that the regimental organization is wholly superfluous when artillery is called upon to fulfil the principal end and object of its existence, though very good and even necessary during peace times, to provide for the systematic conduct of affairs and to furnish promotion to the officers of the arm. Whether organized in regiments or as a corps, the actual result, so far as regimental or corps control is concerned, would undoubtedly have been the same, with the resulting inference that, for actual service, *no* organization higher than the single battery is necessary.

It is simply impossible that this can be true.

The practice which obtained from the very outbreak of the war of using the single battery as the highest organization of light artillery was vicious in theory and in practice. The highest authority we have upon artillery has stated this fact, and our practice in the later years of the war,—the result of experience in the field,—proved that the battalion of batteries, under a responsible head and with still higher grades of authority to control battalions, would give results wholly impossible of attainment with divided commands.

Had the colonel of a regiment of artillery taken the field as the chief of artillery for a corps, with his field officers in their proper places as chiefs of battalions, to serve with divisions or directly under the corps commander as occasion might demand, can any one doubt for a minute the increased efficiency of that regiment as a fighting machine?

In actual practice the field officers of the regular artillery were all given volunteer rank *to command infantry*, and no field officers for volunteer batteries (the exceptions were very few in number) were commissioned; and when it was found by experience that artillery gained power in a geometrical ratio by concentration, captains were taken from their batteries to act as the field officers which must be had, but never, to the very end, was the point conceded that light artillery, fully as much any other arm, must have its field officers actually with it in the field.

The necessity for experienced officers to command volunteers was undeniable, and the gain to the whole service by depriving the artillery of its legitimate leaders was greater, perhaps, than the loss to the artillery itself; but there is something radically wrong in the system which brings about such a crippling of one arm.

The senior officers remaining should have been given at least temporary rank in the higher grades of their own arm *to command artillery*, and had this been done, we have the assertion of the artillery officer best qualified by experience to express an opinion, that the efficiency of our arm, great as it was, would thereby have been increased from one-third to one-half.

Whether the organization of the arm should be regimental or corps is a subject upon which there will always be wide divergencies of opinion; but the assertion that artillery should be so organized that when it goes into active service it shall have its complete hierarchy of command present with it, will find not one artillerist in opposition.

This can be secured under either form of organization.

With the close of the Civil War the companies of the regiment, excepting the two which were light batteries before the war, were promptly dismounted and stationed upon the Atlantic seaboard from Maine to New York Harbor. The light batteries went to Texas. The field officers rejoined and the regimental staff was again established, so that the regular routine of garrison life was soon in operation as smoothly as though it had never been interrupted.

The artillery had had a double line of first lieutenants ever since 1821, but about this time the President was authorized to give it, in his discretion, a double line of second lieutenants as well. He availed himself of this right to some extent, the number of second lieutenants in the regiment increasing from 12 in 1866, to 22 in 1870. This was the greatest number on any annual register, and from this time it diminished until the register for 1874 showed but 7 in all. Since 1876, however, there have been two second lieutenants for a light battery and one for each foot battery. The second lieutenants appointed in the years from 1867 to 1870 are those who are now,—more than 23 years later,—patiently awaiting their captaincies, and even now with no immediate prospect of attaining them.

The regular monotony of garrison life in the years following the war was relieved from time to time by occurrences of more or less importance involving the movement of companies.

The Fenians required the presence of almost the whole of the regiment upon the northern boundary of New York in 1866 and again in 1870. Light Battery K was brought out to overawe a mob in New Orleans in 1866. A large part of the regiment was called out on four different occasions, in 1869, 1870, and 1871, to protect internal revenue officers in their pursuit of illicit whisky in the slums of Brooklyn;—and large details were made, with ever increasing frequency, for funeral escort duty for the veterans of the war.

In November of 1872 the regiment left its northern stations for those on the Atlantic and Gulf coast from Charleston, S. C., to Pensacola Harbor, Fla. Here it served three years, suffering each summer from yellow fever, but in 1875 the welcome order of relief came and by the 1st of January, 1876—the Centennial year—the regiment was stationed along the New England coast from Fort Adams, R. I., to Fort Preble, Me.

This was the year of the disputed Presidential election and in November every battery of the regiment left its station for duty in some one of the disturbed districts. One of them went from Maine to Florida, and all went into the Southern States. The mere presence of the troops was all that was required. They were never called upon to act, but it was several months before the batteries were finally allowed to return to their posts.

The labor riots of 1877 also took the whole regiment out, this time into Pennsylvania; but there was never occasion for firing a shot. The appearance of the troops sufficed to overawe the rioters.

Late in the year 1881 the regiment left New England for the Pacific coast where the batteries occupied Fort Canby and the posts in San Francisco Harbor for more than eight uneventful years.

In May, 1890, it was brought back to the Atlantic coast and stationed at

its present (November, 1894) posts, with nine batteries and one light battery in New York Harbor, one battery at Fort Monroe, and one at Fort Sheridan, Ill. (first at Fort Riley, Kas.)

Since the last change of stations there has been but one event in its history of any importance, when at Wounded Knee, an opportunity was given Light Battery E to render gallant service which it took advantage of to the fullest extent.

THE SEVENTEENTH REGIMENT OF INFANTRY.

BY CAPTAIN C. ST. J. CHUBB, 17TH U. S. INFANTRY.

ON the 3d day of May, 1861, President Lincoln issued a proclamation adding a number of regiments to the military establishment. The following day G. O. No. 16 was issued from the Adjutant General's office containing a "Plan" for their organization, and as one of them, the present 17th Infantry came into existence. It differed from the older regiments of infantry in that it had three battalions with one major, one adjutant, one quartermaster and commissary, one sergeant-major, one commissary sergeant, one hospital steward and eight companies each; while no provision was made for regimental sergeant-major, commissary sergeant or hospital steward.

By Act of Congress approved July 29, 1861, the action of the President was confirmed and the regiment obtained a legal status; the law made a few changes in its organization, which were, however, minor ones, and the "Plan of Organization" was substantially carried out. The act reduced the term of enlistment, for those enlisting in 1861 and 1862 only, to three years; and provided for the disbandment of the regiment within one year after the constitutional authority of the Government of the United States should be reestablished, and organized resistance to such authority should no longer exist.

General Order No. 33, A. G. O., June 18, 1861, announced the appointment of a number of officers, their commissions dating May 14, 1861. So many declined that in G. O. No. 65 (of August 23d) a "Revised edition" of G. O. No. 33 was published, leaving out a number of those originally mentioned and naming others, some of whom were given commissions dating May 14th and were placed senior to some named in the first order.

In this latter order the field officers were named as follows:—Colonel Samuel P. Heintzelman, Lieut.-Col. J. Durell Greene, and Majors Abner Doubleday, William H. Wood and George L. Andrews. There were also mentioned 18 captains, 23 first lieutenants and 2 second lieutenants. The field officers all accepted but a number of the company officers did not, and the last original vacancy above the grade of second lieutenant was not filled until February 19, 1862. The regiment never had its full complement of second lieutenants until after the reorganization of 1866, while between January, 1864, and February, 1866, there were none, and vacancies existed in the grade of first lieutenant.

The regimental and battalion adjutants and quartermasters were mentioned in the law in addition to the company lieutenants, thus giving 32 first lieutenants, but the number 24 was never exceeded and the regimental staff were not extra lieutenants until after 1866.

Fort Preble, Me., was designated as the headquarters of the regiment,

and early in July, 1861, the officers commenced to assemble there. Lieut.-Col. Greene arrived and took command July 6. He appointed Lieuts. E. O. Pearson, Jr., and Nathaniel Prime, acting adjutant and quartermaster, respectively; assigned officers to recruiting duty in various towns in Maine and New Hampshire, to which two states recruiting was at first restricted; and commenced actively the organization of the regiment.

The *Trent* "affair" caused Great Britain to send several battalions to Canada during the winter of 1861-62, and the St. Lawrence being frozen, the troops landed in New Brunswick and were conveyed along our boundary in sleds. A number of men deserted, found their way to our recruiting stations and later became non-commissioned officers in the regiment. They assisted materially by their knowledge and experience in organizing and disciplining the recruits.

What was known before the war as "Poppenberg's Band" of Buffalo, was enlisted as an organization, and under its talented leader became the 17th Infantry Band. During a part of 1863-64 it was stationed at General Heintzelman's headquarters in Washington, and played at the White House, alternating with the Marine Band with which it was favorably compared.

By March 4, 1862, five companies had been organized, and on that date they left Fort Preble under command of Major Geo. L. Andrews and joined "Sykes' Regular Brigade" near Arlington Heights. A few days afterwards Companies B and D were detached and formed part of the provost guard at General McClellan's headquarters, and remained on this duty until July 9, when, after making a petition to that effect, they rejoined the battalion. The other three companies were joined with three of the 10th Infantry and formed a battalion of the brigade. They did not long remain united, the 17th soon becoming a separate battalion.

The battalion embarked at Alexandria March 26, 1862; arrived at Fort Monroe March 28, and proceeded up "The Peninsula." The five companies participated in the siege of Yorktown, performing their share of duty in the trenches. Companies A, C and E were present at Gaines' Mill and Malvern Hill, the first of these battles being inscribed on the regimental colors. In it the regiment lost Captain Dodd and five men killed, three officers and twenty-five men wounded or missing.

While in camp at Harrison's Landing Companies B, D, F, G and H joined, which made a complete battalion of eight companies present. It withdrew from the Peninsula with the rest of the army, landed at Aquia Creek and proceeded towards Manassas. August 29th, Companies B and F were engaged at Gainesville, and the next day the entire battalion was engaged at 2d Bull Run, which is inscribed on its colors. The losses were 5 men killed and 43 wounded or missing. The battalion was present at Antietam, Shepherdstown, Leetown and Fredericksburg, the last of these being borne on the colors, and in this battle the position was a most trying one. For one entire day (December 14) the men lay flat on their faces eighty yards in front of the famous stone wall, behind which the enemy was posted in large numbers; and any movement on their part was sure to draw the fire of the rebel sharpshooters. The regiment lost Captain McLanburg and two men killed and nineteen men wounded.

After Fredericksburg the army went into winter camp at Potomac Creek, and while here, owing to the depleted ranks, Companies B, E and F were broken up March 1, 1863, and the men assigned to Companies A, C, D, G and H. Shortly afterwards Companies A and B, 2d Battalion, joined from Fort Preble, giving seven companies in the field.

April 27, 1863, active operations were again commenced, the army marching to the Rapidan. May 1, the regiment was deployed as skirmishers and opened the battle of Chancellorsville (which name is inscribed on its colors), and lost Captain Temple and five men killed, two officers, and 27 men wounded or missing, Lieut. Weld dying soon after from the effects of wounds.

June 26, 1863, the revenue cutter *Caleb Cushing* and schooner *Archer* were captured by rebels in Portland Harbor, and the next day three officers and thirty-eight men of the regiment with two guns went from Fort Preble in the steamer *Forest City* to recapture them; the rebels set the cutter on fire and abandoned it; the entire rebel crew—captain and 25 men—was captured, and the schooner, with two prisoners they had, retaken.

Early in June, 1863, Lieut. Col. Greene joined and took command in the field, Major Andrews going to Fort Preble.

July 1 and 2, 1863, the regiment made a forced march in order to reach the field of Gettysburg, during which so many of its men fell by the way-side utterly exhausted, that of the 334 present June 30, but 226 went into action. In the fierce fight that followed in the "Devil's Den," Lieutenant Chamberlin and 24 men were killed and 13 officers and 112 men wounded or missing, Lieutenant Abbott dying shortly after from wounds. "Gettysburg" appears on the colors.

August 14, 1863, the regiment was detached from duty with the Army of the Potomac and proceeded to New York City, where it camped in "Jones' Wood," and was active in the suppression of the "Draft Riots."

September 11, "The General" was sounded, and the men thought that their hope—which had grown into belief—of returning home, was about to be realized. The regiment marched through the city and embarked on the steamer *Admiral Dupont*, where they soon learned that they were bound for the "Old Dominion," and on the 21st they rejoined their corps; were present in engagements at Rappahannock Station and on Mine Run, and marched with it until going into winter camp, first at Catlett's Station and later at Nokesville, at which place Company C, Second Battalion, joined early in April, 1864.

Lieut.-Col. Greene was promoted and left the regiment in December, 1863, and from that time until after its withdrawal from the field there was no field officer present with it.

May 3, 1864, the army was again on the move. The regiment comprising nine companies (after Company B, 1st Battalion, which had been lately reorganized, joined June 8) took part in "The Wilderness Campaign" and "The Operations before Petersburg," inscribing on its colors Laurel Hill, North Anna, Bethesda Church, Cold Harbor and Petersburg; while its records show in addition that it was engaged at Spotsylvania C. H., battle of the Wilderness, and on the Pamunkey and Totopotomoy rivers

the losses during this time being Lieutenants Dowling and Stimpson mortally wounded and dying soon after, sixteen men killed and six officers and 113 men wounded or missing.

In August the regiment took part in the capture of the Weldon Railroad, and on the last of September and 1st of October was engaged at Poplar Springs Church, both of these names being inscribed on the colors—the latter as Chapel House. In these two engagements the losses were Lieutenant Crosman and eight men killed, four officers and 82 men wounded or missing.

The regiment had now become so reduced in numbers that on the 13th of October, 1864, it was withdrawn from the field and took station at Fort Lafayette, New York Harbor, where it guarded rebel prisoners both civil and military.

It has been impossible in such a brief sketch to do full justice to the regiment. Suffice it to say that its history—from March, 1862, to October, 1864—is inseparably connected with that of the famous "Regular Division" of the Fifth Corps, and that where that corps was called upon the 17th Infantry was ever ready and did its full share.

The battalion in the field was composed of three companies (the other two being part of the provost guard) until July, 1862; eight until March, 1863; seven until the spring of 1864, and after that of nine.

The records of the regiment are not complete enough to make an accurate table of casualties. Colonel Fox in his "Regimental Losses in the American Civil War" states the deaths as follows: Killed or died of wounds, nine officers and 92 men. Died of disease, accidents, or in prison, etc., two officers and 100 men. The per cent. of loss has not been figured out but it is worthy of note that in the number of officers killed the regiment was exceeded by no other regiment and equalled by only the First Cavalry and 18th Infantry—each larger organizations. In addition to the number given by Colonel Fox, the regiment lost Captain Wilkin, while serving as Colonel Second Minnesota Vols., killed in the battle of Tupela, Miss.

Fort Lafayette was garrisoned for one year, and Oct. 14, 1865, the troops were transferred to Hart Island in Long Island Sound at which point the regiment was concentrated, headquarters and several companies moving down from Forts Preble and Scammel, Me. General Heintzelman joined Oct. 24, 1865, thus giving the regiment, for the first time, its colonel present for duty.

Recruiting was actively carried on and by Feb. 1, 1866, the twenty-fourth company was organized. In March, Companies E, F and H, Second Battalion, were sent to Michigan and stationed, first at Detroit Barracks, then at Forts Wayne and Gratiot, until, in October, they were sent to Kansas and Missouri, from whence, in November, they went to Texas. In April, the regiment was ordered to Texas, regimental and all battalion headquarters, three companies of the first, two of the second and all of the third battalion leaving early in the month, going by sea and arriving in the latter part of the month at Galveston. The companies that remained at Hart Island were those that had been greatly reduced during their field

service and not yet recruited. Early in July two of these (A and D, First Battalion) followed; the cholera broke out aboard ship and upon arrival the troops were put in quarantine on the beach at Galveston where they remained until November. This disease breaking out also at Hart Island the remaining six companies (C, G and H, First Battalion, and A, B and C, Second) were on July 20th changed to David's Island, which place they left Oct. 20, and joined at Galveston, Nov. 1st. During the epidemic the regiment lost Major Plympton and a large number of men.

Soon after arrival in Texas a number of companies were sent to different points and commenced that most disagreeable work known as "Reconstruction Duty."

To carry out the Act of July 28, 1866, two new companies for each battalion were organized at Newport Barracks, Ky., and sent to Galveston; the 2d Battalion was concentrated at Austin and the 3d Battalion at San Antonio, and were changed into the 26th and 35th Regiments of Infantry respectively.

In 1867 Yellow Fever visited the troops at Brenham, Galveston, Houston and Hempstead, the regiment losing Major O'Connell, Captains Swartwout, Warren and Black; Lieutenants Lambert and Voris and over 120 men.

Early in 1869 the regiment was ordered to transfer its men to the 24th Infantry, and the officers and surplus non-commissioned officers were to proceed to Fort Columbus, N. Y. H., for recruiting duty. Before this could be carried out, and owing to an Act of Congress reducing the army, the order was revoked, and soon after another was issued for the regiment to proceed to Virginia and there have the 44th Infantry consolidated with it. The movement commenced in April and by the latter part of May all had arrived at Camp Grant, Richmond, Va. Companies H, I and K were broken up and about the same time the 44th Infantry was consolidated into three companies which, on the 1st of June, became H, I and K of the 17th. General Heitzelman was retired and Gen. T. L. Crittenden assigned as colonel in his stead.

The companies were stationed at various points in Virginia and continued on reconstruction duty. There being some trouble in North Carolina, Lt. Col. Hayman and four companies were sent there early in 1870.

Soon after, owing to a disturbance among the Sioux, the regiment was ordered to Dakota. It left the east in April and arrived at Fort Sully about the middle of May, and commenced that long tour of service which lasted over sixteen years—a longer period, with a single exception, than any regiment has served continuously in one department since the war. The labor and hardships of that time are not now required of troops. Posts were built and rebuilt, wood and hay provided, mails carried and roads kept in repair, all by the work of troops. In the winter, communication with the outer world was almost cut off during the first years; the paymaster would let four or six months pass without a visit and it was considered fortunate to get the mail on an average of once a month. The coldest weather recorded was 61° below zero at Fort Pembina, and the entries in the returns "frozen to death" and "killed by Indians" help to tell the story. Of the thirty-five officers who belonged when the regiment entered the Territory

but eight remained to leave with it, and of the enlisted men only about seven.

The companies were almost continually on the go and changing from post to post at all seasons of the year. These changes were too numerous to mention, parts of the regiment occupying at various times Forts Snelling, Minn., Abercrombie, Wadsworth (later called Sisseton), Pembina, Totten, Stevenson, Abraham Lincoln (formerly McKeen), and Rice, Dakota; and Custer, Montana; Grand River, Cheyenne (Ft. Bennett) and Standing Rock (Ft. Yates) Agencies, Dakota, and Camps Hancock, Dakota, and Porter, Montana.

The headquarters was stationed as follows: In camp Fort Sully until August 11, 1870; Fort Rice, D. T. to September 9, 1873; Fort Abercrombie to August 11, 1876; Standing Rock Agency, to November 5, 1878; Fort Totten to May 24, 1897; Standing Rock (Fort Yates) to July 13, 1886.

Gen. Crittenden left the regiment in June, 1876, and never rejoined. He retired May 19, 1881, and was succeeded by Col. C. C. Gilbert, who, in turn, retired March 1, 1886, Col. Alex. Chambers succeeding him and joining upon arrival of the regiment in the Department of the Platte.

September 9, 1871, Companies D and H left Fort Rice as part of the Yellowstone Expedition, under Col. Whistler, they marched 250 and 295 miles respectively and returned to their post in the latter part of October.

In the spring of 1872 Companies G, H and K were at different times sent out from Fort Rice as escorts to engineers N. P. R. R. along the Heart River. July 26th, Major Crofton, with Companies A, C and F left Fort Rice as part of the Yellowstone Expedition under General Stanley, and had engagements with Indians August 18th on Powder River, and August 22d on O'Fallon's Creek. October 2d the battalion was relieved from duty with the expedition and started for its post. On the 3d, while out hunting from the command, Lieut. Crosby was killed and scalped by Indians and on the 4th, while searching for his body, the camp was attacked by Sioux and an engagement followed, the Indians being repulsed without loss to the troops. On the 6th Fort Rice was reached, the command having marched during the summer—A and C 676 miles, F 833 miles.

The Indians made frequent attacks on Fort A. Lincoln, Company H being engaged in repulsing them October 14th and November 3, 1872, and June 15 and 17, 1873.

In 1873 a second expedition under General Stanley went up the Yellowstone as far as Pompey's Pillar. Major Crofton with Companies A, B and H forming a part. Company H left Fort Lincoln June 18th and the others Fort Rice June 20th. Company B was detached, first to escort a wagon train and afterwards—from July 26th to September 12th—with Troops C and H, 7th Cavalry, as guard at supply depot on Yellowstone, near Glendive Creek, where they built a stockade. All returned to their stations the latter part of September, having marched over 1100 miles.

June 8, 1874, Company G left Grand River, proceeded to Fort A. Lincoln, and joined the Black Hills Expedition under General Custer, returning to its station, September 6, having marched 1125 miles.

In September, 1875, the residents of Bismarck asked for protection from

Indians. Company H. was sent there on the 27th and stationed at Camp Hancock. Trouble being apprehended Company A was sent in October to strengthen Fort A. Lincoln; it remained but a week and returned to its station Fort Abercrombie.

March 21, 1876, Company C left Fort Sisseton and proceeded to Fort A. Lincoln from which post it started with Company G as a part of the Big Horn Expedition, under General Terry, against the hostile Sioux. Upon arrival at the Yellowstone these two companies with other troops were detailed for service along that river; the summer and fall being spent doing guard and escort duty. October 10th Company C with two companies 22d Infantry started from Glendive on escort duty to Tongue River. On the 11th they were attacked by Indians on Spring Creek and returned. On the 14th a larger escort—consisting of Companies C and G with three of the 22d under command of Colonel Otis—started out, and on the 15th and 16th they had engagements with the Indians on Clear Creek, repulsing them and continuing on to Tongue River. December 2d these two companies were relieved from duty at Glendive and marched via Forts Buford and Stevenson to their posts; G arriving at Fort A. Lincoln December 18th and C at Fort Sisseton December 28th.

In July, 1876, the bed of the Missouri changed at Cheyenne Agency, washing the "officer's line" away. It was done so quickly that where the houses stood one night was the channel of the river the next.

October 16, 1876, General Terry started from Fort A. Lincoln with an expedition to disarm and dismount the Indians at Standing Rock and Cheyenne Agencies. Companies A and H forming part of his command, marched down the east bank of the Missouri as far as Cheyenne Agency, and returned to Fort A. Lincoln Nov. 10th. The disarmament was made at Standing Rock October 22d, and at Cheyenne about October 31st, General Carlin with Companies E and F, assisting at the former and Companies I and K at the latter place.

The year 1877 was a comparatively quiet one. Most of the regiment was ordered to take station at Standing Rock, but before the last company arrived five of them were hurried in December to different points in eastern Dakota and Minnesota to relieve the 20th Infantry.

In August, 1878, Company D went from Fort A. Lincoln as escort to N. P. R. R. officials, marching to Glendive Creek and return—about 420 miles.

At Standing Rock Agency trouble with the Indians was repeatedly threatened, detachments were frequently sent out and on several occasions the troops put under arms.

June 2, 1879, a detachment under Lieutenant Burns was sent from Fort Sisseton to the village of "Drifting Goose" to keep peace between his band and white settlers. On the 7th of July Company G left Fort A. Lincoln on escort duty N. P. R. R. extension and returned August 15th.

June 1, 1880, Company B left Fort Gates and formed part of a command, under Colonel Merrill, guarding construction parties along the N. P. R. R. between the Missouri and Yellowstone rivers. It remained on this duty until October 21st, when it proceeded to the Yellowstone River and

established, with one company 11th Infantry, Camp Porter near the mouth of Glendive Creek. Doors, sashes and nails were furnished, the other building material was obtained by the troops, and they made themselves as comfortable as possible during the winter of 1880-81, without stoves, flooring or plastering.

In June, 1881, Company G was sent to Bismarck owing to a strike of steamboat hands. In this year a large number of Indian prisoners were sent to Standing Rock Agency and Company H was detailed to guard and provide for them. It was later decided to send Sitting Bull and his band to Fort Randall for confinement. Company H left Standing Rock with them—173 in number—September 10th, on the steamer *General Sherman*, and during the company's absence Company G was sent to that post for temporary duty.

The last five years in Dakota were quiet ones—there being only a few moves, some minor Indian excitements, and during the winter of 1883-84 the companies at Fort Yates were sent into camp to cut wood for the garrison.

In July, 1886, the regiment was transferred to the Department of the Platte, Company B going to Camp Medicine Butte, H to Fort Bridger, and the balance to Fort D. A. Russell. In February, 1887, B changed to Fort D. A. Russell and the following September D went to Fort Bridger.

September 1, 1890, Companies I and K were skeletonized and on the 20th of that month D and H changed to Fort D. A. Russell. This movement brought the regiment all together, it being the first time—except for a brief period at Hart Island—that it has been so stationed.

Colonel Chambers died January 2, 1888, and was succeeded by Col. Henry R. Mizner, whose retirement, August 1, 1891, gave to the regiment Col. John G. Poland, its present colonel.

Commencing with 1887, during each summer the companies have been sent on practice marches or into camps. In 1888, D and H, as part of the Fort Bridger garrison, marched through a picturesque country 261 miles to and from Strawberry Valley, Utah, for an encampment with the troops from Forts Douglas and Du Chesne, Utah; while the companies from Fort D. A. Russell had a monotonous march of 670 miles along the U. P. R. R. to and from Kearney, Neb., to encamp with those at Forts Omaha and Sidney, Neb. In 1889 all the troops of the department (except those of Fort Du Chesne) concentrated August 20, at Camp Crook, Fort Robinson, Neb., for one month's field manoeuvres, and here for the first time since 1870 the entire regiment met. In 1891, the encampment (full regiment) was with the Wyoming National Guard at Laramie City. The other years the marches or camps were only for short distances from the posts.

December 17, 1890, Lieutenant-Colonel Offley, Major Egbert and Companies A, B, C, D, E, G and H (with Lieutenants Kerr and Muir and Quartermaster Sergeant Bennett voluntarily accompanying) left Fort D. A. Russell for South Dakota to take part in the campaign against the hostile Sioux. They proceeded by rail to points along the railroad to the Black Hills, then marched to and camped along the Cheyenne River, closed in to White River, and finally concentrated at Pine Ridge Agency. The cam-

paign ending, they took part in the review of January 22d, and returned to their post January 26th. Of the twenty-one officers belonging to these seven companies nineteen were in the field with them.

April 21, 1892, the major, adjutant and Companies C and G went by rail to Douglas, Wyo., received forty-four cattlemen and Texans, who had invaded the northern part of the State, and brought them to Fort D. A. Russell, where they were kept in confinement until July 5, 1892.

The entire regiment is now stationed at Fort D. A. Russell Wyo.

THE TWENTY-FOURTH REGIMENT OF INFANTRY.

BY LIEUTENANT H. W. HOVEY, TWENTY-FOURTH U. S. INFANTRY.

THE present 24th Infantry is an example of the injustice done to regiments of a standing army by the statutes of a republic not forced by its surroundings to maintain a large military organization. The laws governing the consolidation of regiments at the conclusion of our wars, during which the number of organizations has been increased, have resulted in stamping out regimental traditions in many organizations, and have left this one without any, although its number has been borne twice by regiments in the regular establishment, which after honorable service have been consolidated with others, thereby losing all identity, and forfeiting records which would have given honor to them in history.

The existing 24th can therefore, under the conditions of its organization claim for itself none of the honors of war won by its predecessors; and, except for the war records of officers who have served or are now serving in it, and by the honorable service of the few enlisted men who served in the late war, it can present but a short history of duties performed, often under adverse circumstances but always cheerfully and uncomplainingly.

Under the Act of July 28, 1866, the 38th and 41st Regiments of Infantry were organized both to consist of colored men. All of the officers in both regiments except the chaplains had seen service during the War of the Rebellion either with the regular or volunteer forces, and all but one had been breveted for services performed under perilous or other entitling conditions. Of the 38th Infantry, Brevet Major General Wm. B. Hazen was colonel, Brevet Major General Cuvier Grover, lieutenant colonel, and Brevet Colonel Henry C. Merriam, major. Of the ten captains who were assigned to the regiment at or near the time of its organization there are now in active service but three, and but five of the eighteen lieutenants.

The 41st Infantry was commanded by Brevet Major General Ronald S. Mackenzie, with Brevet Brigadier General Wm. R. Shafter, lieutenant colonel, and Brevet Brigadier General Geo. W. Schofield, major. Of the ten captains assigned to it at or near its organization but two are now in active service, and but four of the eighteen lieutenants.

The 38th was distributed along the transcontinental railroads then building, and in New Mexico, and the 41st was in Louisiana and Texas during the same period. The work performed by these regiments is a part of the history of the departments in which they served.

Under the Act of March 3, 1869, the 38th and 41st Regiments were consolidated and became the 24th Infantry, and as thus reestablished has since continued in service. Under this reorganization Ronald S. Mackenzie became colonel, William R. Shafter, lieutenant colonel, and Henry C. Merriam, major. Of the captains assigned to the new regiment there are

in active service at this writing, six, but two only serving in it; and of the twenty lieutenants there are also six, but four only remaining in it. A few of the enlisted men who served in the War of the Rebellion or in the 38th or 41st Regiments may still be seen in its ranks.

The regiment was in Texas from 1869 to 1880 and at some time during that period the several companies were stationed at all or nearly all of the many posts and permanent camps in that great State.

The duties falling to it were many, consisting of expeditions against Indians over the staked plains and other sections, guarding strategic points, building roads, hunting horse thieves, and in other ways performing arduous service which brought no fame, but required of its officers and men constant vigilance, discretion and care in the performance of the service; and it thus aided in clearing western Texas of Indians, opening the country to settlers. On December 15, 1870, Gen. Mackenzie was assigned to the 4th Cavalry and Bvt. Maj.-Gen. Abner Doubleday succeeded him as colonel, remaining in that position until December, 1873, when, upon his retirement, Bvt. Brig.-Gen. Joseph H. Fetter became the colonel.

In the autumn of 1880 the regiment changed to Indian Territory and the several companies were stationed at Forts Supply, Reno, Sill, Cantonment on the north fork of the Canadian River, and again a part of it in Texas at Fort Elliot. During this time no campaign service fell to its lot.

In April, 1886, Col. Potter having been appointed a brigadier general, Col. Zenas R. Bliss succeeded him and is still in command of the regiment.

In June, 1888, the regiment moved to the Department of Arizona with headquarters and three companies at Fort Bayard, N. M., the remainder of the companies being distributed in Arizona at San Carlos, Forts Grant and Thomas, and for nearly four years they performed all the infantry duty at these posts. The duty at San Carlos was particularly trying under circumstances of danger and discomfort, but no serious trouble with the Indians occurred to require unusual work, and the only incident of note was the fight of Paymaster Wham's escort, composed of men of the 24th Infantry and 10th Cavalry, who when attacked by a gang of robbers made a brave stand for which medals of honor or certificates of merit were given according to rank.

The companies of the regiment which had been distributed at the before-mentioned posts were in 1892 sent to Fort Huachuca, and as two companies had in the meantime been skeletonized, the regiment now became equally divided, with headquarters, D, E, F and G, at Fort Bayard, N. M., and Companies A, B, C and H at Huachuca, where at this writing they still remain.



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Gold Medal, Germany, "Massive," 1877.

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Silver Medal, Austria, 1879.

Gold Medal, Royal Agricultural Society, London, Eng., 1879.

Gold Medal, Exposition des Sciences Appliquées à L'Industrie, 1879.

Both Gold and Silver Medals, The International Health Exhibition, London, England, 1884.

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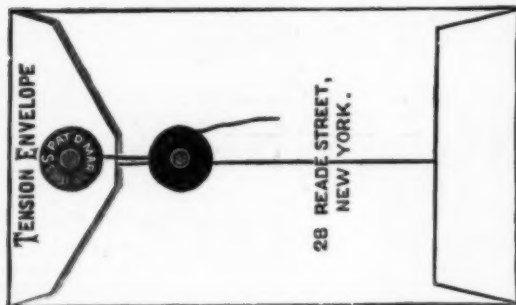
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